THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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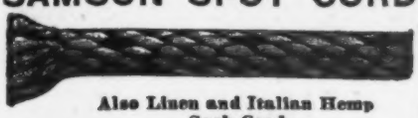

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THE IRON AGE

THURSDAY, JULY 7, 1904.

A New Automatic Threading Lathe.

A new tool especially designed for cuttting taps and dies has been brought out by the Automatic Machine Company, Bridgeport, Conn., being a development of the automatic threading lathe made by the same concern. In this machine the time ordinarily lost in returning the carriage at the end of each cut is very greatly reduced, occupying less than one revolution of the spindle. This is all the time that is wasted from actual thread cutting, even on the longest screw that the machine will handle, 20 inches. The carriage return is not accomplished by reversing the spindle nor by the lead screw, but by means of the heavy counterweight seen in the ilustration. The operating of a trip opens the part nut on the lead screw and the carriage is drawn back by the weight, its momentum being absorbed by an air cushion, preventing shock. In all other movements of automatic tool entrance, retirement and feed this machine is the same as the automatic threading lathe, but its one improvement has increased the possible output from 25 to 75 per cent.

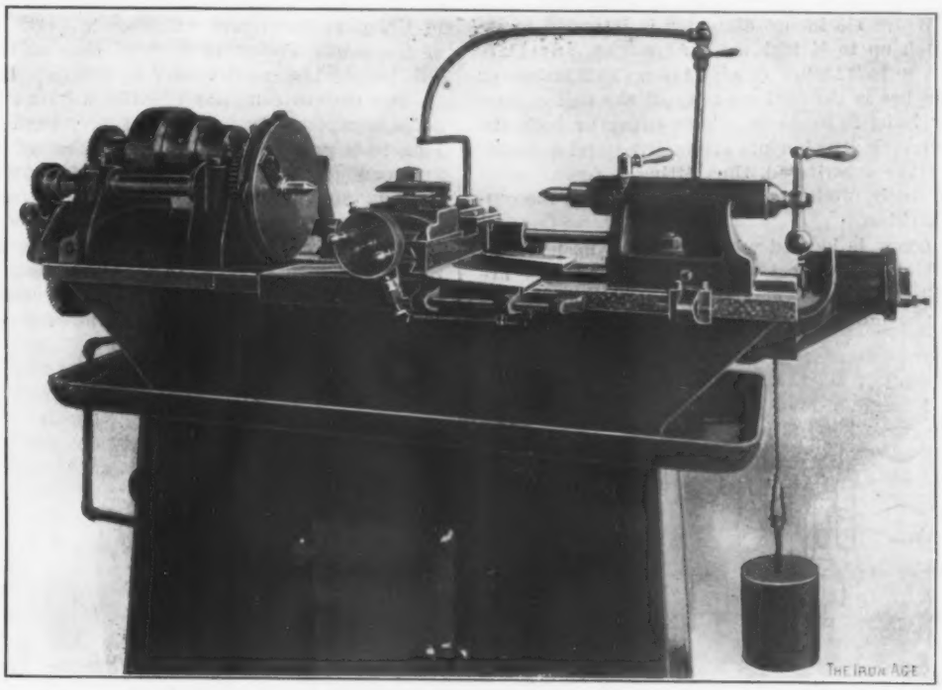


Fig. 1.—Working Side of the Automatic Machine Company's Improved Threading Lathe

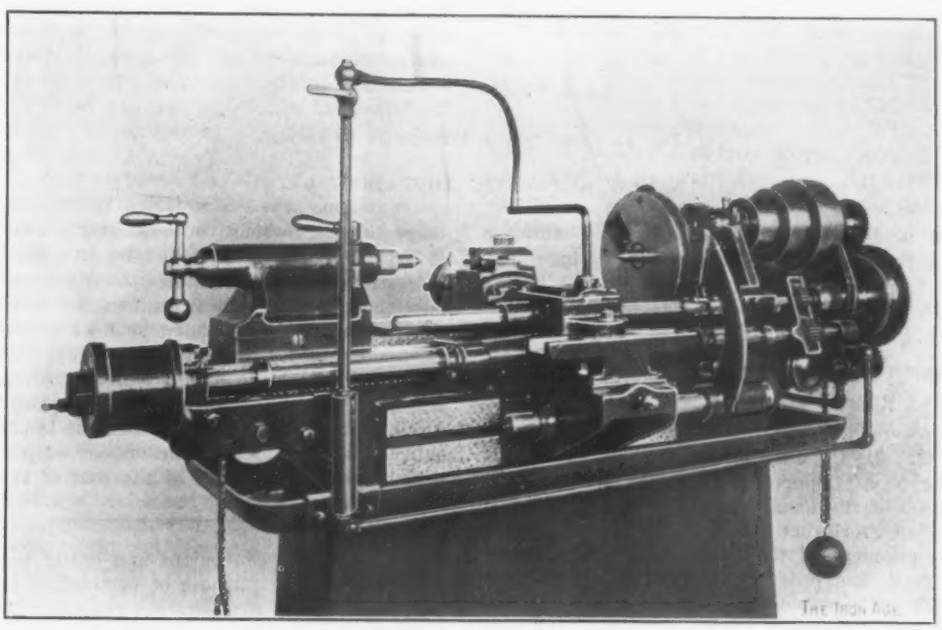


Fig. 2.—Rear View.

The construction and action of the new feature may be understood by referring to Fig. 3. The tool post A is operated by cam B through connection C. The lead screw nut D is opened and closed by cam E through connection F. The cams B and E are connected by gears, seen in Fig. 2, directly beneath the pulley cone, and act together on the cutting tool and lead screw nut. The

intermediate slide G carries the tool slide and cam B and is controlled entirely by the taper attachment slide H. The operation of the relieving attachment is clearly shown in Figs. 2 and 3.

The illustrations are from photographs of the lathe fitted for threading and relieving taps and dies, either straight or taper, both operations being performed simultaneously. Simple provisions for adjusting enable any amount of relief or backing off to be obtained and any number of flutes may be so treated. The rated capacity of the lathe is diameters up to 1½ inches, and thread lengths up to 18 inches; although the swing over the carriage is 4 inches and the distance between centers is 20 inches. While 1½ inches diameter is intended to include any pitch up to ¼ inch, such as worms, any U. S. Standard tap up to 3 inches or pipe tap up to 2 inches or die up to 4 inches is the real capacity of the tool.

A similar lathe is made on which either or both the taper and relieving attachments are omitted and a double tool post carriage substituted, thus fitting it for all sorts of small and finely pitched screws, and doubling the output of the machine.

The lead screw is located within the bed, as near the tools as possible. Several with differing pitches are furnished with the lathe, and any change from one to another may be quickly made. In a shop trial of this machine—not made for the purpose of establishing a record—the threading and relieving of a 1½-inch pipe tap were performed with a single pointed tool in ten minutes; both tool and blank were of Jessup tool steel.

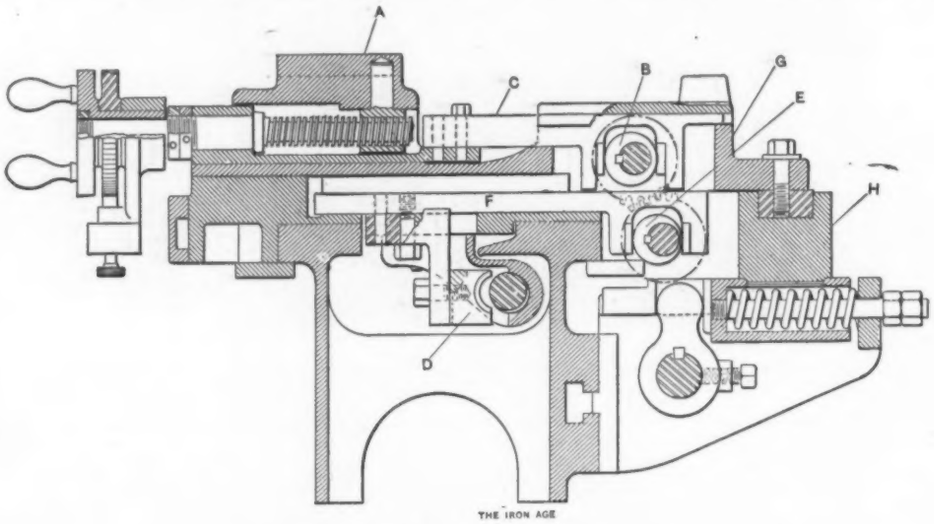


Fig. 3.—Cross Section through Tool Carriage.

A NEW AUTOMATIC THREADING LATHE.

The Extension of the Washington Naval Gun Factory.

WASHINGTON, D. C., July 5, 1904.—The accounting officers of the Navy Department have decided that the sum of $575,906 of the moneys appropriated in the last annual naval appropriation bill is available for the extension and equipment of the naval gun factory at the Washington yard, and orders have been issued to push the work with all possible speed. This sum is much more than it was thought could be applied to the purpose, and the work to be done therewith will materially increase the productive capacity of the plant, and therefore will render the Department more independent of private contractors for guns of all calibers than heretofore.

The available appropriation will be expended during the new fiscal year in accordance with the following schedule: Building power plant, $134,964; machinery for electric power plant, $205,200; building electric power plant, $97,983; wall about yard, $32,000; pipefitters' shop, $20,000; cold storage and handling plant, $19,084; locomotive crane, $10,000; platform scales, $3,675; telephone and time system extension, $2,000; paving, $10,000; grading, $5,000; drainage, $5,000; underground conduit system, $10,000; dredging, $5,000; light plant extension, $5,000.

While the appropriation now available is much less than the estimate submitted by the Chief of Ordnance, based upon the report of the special board appointed to devise a method of developing the facilities of the gun factory to meet the demands of the growing navy, it is probably as much as can be expended to advantage during the coming twelve months. The superintendent of the factory and the officers of the Ordnance Bureau will at once begin the preparation of estimates to be submitted to Congress for funds sufficient to carry out the plans of the board, and it is believed that at least $1,500,000 will be provided next winter to complete the work.

The Government has recently acquired a tract of 14 acres of ground west of the old navy yard, and upon this land it is proposed to erect a number of new buildings necessary to the symmetrical expansion of the facilities of the gun factory. Besides those structures appropriated for in accordance with the above schedule, the Chief of Ordnance has recommended the building of a new gun factory for medium and small caliber guns, the extension of the east and west gun carriage and erecting shops, and the building of a new brass, iron and steel foundry, a new forge shop, a locomotive house and a steel timber shed. It is proposed in the new foundry to make large numbers of castings of moderate size, which heretofore have been purchased from private firms, as the Department has had great difficulty in obtaining such castings on time, and on numerous occasions important work in the factory has been brought to a standstill on this account. The proposed new forge shop will be employed in making forgings from rough billets, which the Department is now obliged to have done on the outside at prices which are said to be far in excess of the cost of their production at the factory. W. L. C.

To provide a convenient and easily regulated source of power for the purpose of conducting experiments on screw propellers, a substation receiving single-phase alternating current from the traction company at a pressure of 2200 volts has recently been installed alongside the hydraulic laboratory experimental canal of Cornell University. This is stepped down to 220 volts, and operates an induction motor, which, by means of a pair of belts, drives a direct current generator and a separate exciter. A rheostat in the field of the generator, another in that of the exciter, and a bank of lamps in the generator field, enable any desired voltage to be obtained, from 80 to 550, which is maintained fairly constant during the continuance of a "run." Under the previous system it was necessary to keep a man constantly at the rheostat to maintain uniform conditions of pressure.

The Alaska Tin Deposits.

WASHINGTON, D. C., July 2, 1904.—The preliminary bulletin by A. J. Collier of the United States Geological Survey, embodying the results of a reconnoisance of the tin deposits of the York region of Alaska, made last summer, an abstract of which recently appeared in *The Iron Age*, has been supplemented by a more elaborate report, in which Mr. Collier deals especially with the economic aspects of these deposits, including assays of ore from the Lost River region, one of the most important of the known deposits, a summary of recently ascertained facts regarding other occurrences of tin in the Seward Peninsula, a brief description of the methods of sluicing tin ores now employed in this field, and some interesting observations as to the transportation and fuel supply. Following are Mr. Collier's conclusions:

Too Early to Build Smelters.

Some of the promoters of mining enterprises have expressed a desire to install immediately a complete outfit for milling and smelting ore at some point in the York region. The many fiascoes resulting from the building of mills and smelters before the extent of ore bodies had been determined are well known to any one familiar with the history of mining in the United States, so that the folly of this plan is evident. Even after the ore is proved to exist in sufficient quantities for mining, a careful study must be made of the ore itself and of the conditions as affected by climate, wages, fuel supply and transportation, before either the proper place or method of treating the ores can be determined. The erection of a smelter at present would seem to be ill advised, if for no other reason than because no estimable supply of ore exists.

In view of the possible developments of tin mining in this region, the questions of transportation and harbor facilities become important. The coast line of the York region is not broken by any inlet or harbor suitable for sea going vessels. Such craft are obliged to lie a safe distance off shore, while landings of freight or passengers are made with lighters or small boats through the surf, as at Nome. During much of the time the sea is smooth and such landings are easy, but frequently violent storms continue for several days, which would destroy lighters and endanger the ships themselves. In fair weather vessels could be loaded in safety from piers, but the possibility of maintaining docking or other loading facilities along this coast is questionable, on account of the movement of great ice floes that cover Bering Sea during the long winter.

Port Clarence Harbor.

Port Clarence, the only harbor and safe anchorage for large vessels in Seward Peninsula, is a bay 25 miles southeast of York, and, should the tin deposits be worked on an extensive scale, this harbor is easily accessible. It is a large body of comparatively deep water, nearly circular in outline, and cut off from the sea by a long, low sand spit, which terminates in Point Spencer, at the entrance to the bay. On the south side of the entrance, at Port Spencer, a safe anchorage near shore is made use of as a coaling station by whalers *en route* to the Arctic Ocean. It is reported that the ice leaves this part of Port Clarence first, at the opening of summer, and that vessels have made use of this anchorage before they were able to approach the coast at Nome. It is, therefore, possible that Point Spencer might be the most convenient shipping point for the York region. The product of the mines could be brought to the coast of Bering Sea by tramroads or wagons, and in the summer ferried across to Point Spencer, or in the winter hauled over the ice either by traction engines or by horses.

Should production be sufficient to warrant it, a railroad can easily be built from some point on the north shore of Port Clarence to Lost River and up its valley. Should the mines on Buck Creek warrant the building of a railroad, the Lost River line could be extended across the divide at the head of Lost River to Mint River, and thence follow around the northern foothills of the York Mountains to Buck Creek. This road could again be extended from Buck Creek to the locality at Cape Mountain. It would probably not be practicable to build a road along the coast from the mouth of Lost River to York.

Water and Fuel for Power.

During the summer there is sufficient water in the streams of the region to furnish power for all the machinery required in mining and concentrating, but obviously during the winter this source of power is cut off, and coal or other fuel must be used. In Alaska there are two possible sources of coal for the York region. One of these is near Cape Lisburne, about 200 miles northeast of York, on the shore of the Arctic Ocean. There is reported to be an abundance of coal suitable for steaming purposes at this place, but there are absolutely no harbor facilities, no wood is available for timbering the mines, and, further, navigation on the Arctic Ocean is possible for only two months of the year; so that these coal beds cannot be depended on to furnish a coal supply.

The other source of coal is at Herendeen Bay and Port Miller, about 700 miles to the south, on the Alaskan Peninsula, but this coal has not been sufficiently developed to determine whether it exists in commercial quantities. At the present writing it seems that the only certain sources of fuel for the Seward Peninsula are the coal of the State of Washington and of British Columbia. On account of the difficulty in obtaining fuel and the cost of labor and subsistence in the Seward Peninsula, it does not seem possible that the smelting of tin ore in the York region will ever be successfully accomplished. The ore from this region will necessarily be shipped either to the coal mines in other parts of Alaska, to Puget Sound or to other points for smelting. The freight on ore shipped from Point Clarence to Seattle would probably be very low, since the large number of vessels carrying freight to Seward Peninsula and St. Michael would desire return cargoes.

W. L. C.

Shipbuilding Foreclosure Decree.

Judge Lanning signed a final decree in the United States Circuit Court at Trenton, N. J., on July 2, ordering a sale of the United States Shipbuilding Company in the foreclosure proceedings instituted by the Mercantile Trust Company and the New York Security & Trust Company on the two mortgages held by them for $16,900,000 and $10,000,000, respectively. The decree fixes the minimum amount which the receiver is authorized to accept for the properties of the underlying companies. These amounts are as follows: Three hundred thousand shares of the Bethlehem Steel Company, $7,500,000; Union Iron Works, California, $1,400,000; Hyde Windlass Company, Maine, $125,000; Bath Iron Works, Limited, Maine, $300,000; Crescent Shipyard Company, New Jersey, $125,000; Samuel L. Moore & Sons Company, New Jersey, $175,000; Eastern Shipbuilding Company, Connecticut, $125,000; Harlan & Hollingsworth Company, Delaware, $550,000; Canada Mfg. Company, $200,000; patent rights, good will, book accounts and contracts, $50,000; mortgaged personal property of the following companies: Union Iron Works, $300,000; Hyde Windlass Company, $100,000; Bath Iron Works, $40,000; Crescent Shipyard Company, $25,000; Samuel L. Moore & Sons Company, $30,000; Eastern Shipbuilding Company, $20,000; Harlan & Hollingsworth Company, $135,000. The Shipbuilding Company is ordered by the decree to turn over the total amount due on the two mortgages within ten days, in default of which the receiver is authorized to advertise and proceed with the sale. Ex-Senator James Smith, Jr., of Newark is named as special master, and he will conduct the sales at the offices of the Federal Trust Company, at 748 Broad street, Newark. All money is to be deposited with the Fidelity Trust Company.

The issuance of this decree brings the famous litigation into such shape that the reorganization of the properties is now only a matter of detail. The upset price on the entire plants, as shown above, has been set at $11,200,000. The next step in the matter will be the announcement of a date when the properties will be sold at public auction. When the plants have been bought in by the Reorganization Committee the way will be paved for the actual reorganization under the plan already adopted, which calls for $15,000,000 preferred and $15,000,000 common stock and a nominal issue of bonds to provide working capital.

The Pennsylvania Engineering Works.

One of the largest and most complete plants in the country devoted to the building of blast furnace and steel plant construction, general machine and plate work, ingot molds and heavy castings is that of the Pennsylvania Engineering Works, located at New Castle, Pa. The original works were built some years ago by Witherow & Gordon, the principal output being heavy plate work for blast furnace construction. Afterward the plant was operated by James P. Witherow, the well-known engineer, recently deceased, and for a time by his creditors. Finally the plant was taken over by the Pennsylvania Engineering Works, formed at New Castle, and since their acquiring the plant it has been very much enlarged and improved and the capacity has been more than doubled. The ground plan accompanying this article shows very clearly the general layout of the plant. The site embraces about 6¼ acres, of which 4 acres are covered by buildings, the remaining ground being devoted to storage and metal yards.

The Foundry.

The original foundry building was 60 x 100 feet, but in the latter part of 1900, or, when the Pennsylvania Engineering Works took over the plant, a new steel building, 60 feet wide by 240 feet in length, was added. The old part of the foundry building is devoted to the manufacture of lighter castings, while in the new department loam and ingot mold work is turned out. Attached to the foundry building are sand sheds, cupola houses and core ovens. This building is served by three 20-ton electric traveling cranes, with 5-ton auxilliary hoists, two of which were built by the Northern Engineering Works and one by Pawling & Harnischfeger. The old foundry building is served by three light jib cranes, the largest one of 10-ton capacity, which is electrically driven, and two hand cranes of 5 tons capacity. In the old department of the foundry are two cupolas of 5 and 8 tons capacity, while in the new department, in which the product is mostly ingot molds, is a cupola of 20 tons capacity. The foundry building is well arranged and has almost unlimited room for storing flasks. The old foundry has a capacity of about 20 tons of lighter castings per day, while the new foundry is equipped to turn out about 150 tons of ingot molds per day, the average output having been from 115 to 120 tons. A pit caisson permits making castings for plungers and other work 30 feet in length. A switch from the main tracks of the Pennsylvania lines, which runs into the foundry, permits the direct loading on cars of castings which are shipped in the rough. The arrrangement for taking care of cinders from the cupola is an ingenious one. The cinders are dropped into a large pan, which is pulled on rollers into the foundry, after which this pan is picked up by the crane and the cinders dropped into cars. The metal yard alongside the foundry is 272 feet long by 150 feet wide and has facilities for storing upward of 3000 tons of metal at one time. This metal yard has a gentle slope with a runway eight feet wide, covered with cast iron plates, permitting the wheeling of 2250 pounds of metal on a buggy by one man. The metal after being loaded on the buggies is taken up by an elevator and dropped into the cupola.

The Machine Shop.

The original machine shop connected with the old plant was 84 feet wide by 144 feet long, of steel and brick construction, the crane runway being 50 feet wide, with 16-foot lean-tos on each side. Two years ago the machine shop was enlarged, giving a total length of 280 feet, the construction being the same as in the old shop. Galleries were built on either side of the extension to the machine shop, containing tool room on one side and pattern shop on the other. The crane runway in the machine shop is 28 feet high and carries two electric traveling cranes, one of 25-ton capacity, of the Sellers type, and the other of 30-ton capacity, of the Northern Engineering Works type. These cranes are equipped with 5-ton auxiliary hoists. The lighter tools in the shop are served by individual post cranes. The machine shop is splendidly equipped with modern iron working tools, among these being a 10 x 10 x 25 foot Betts planer with four heads, an 8-foot Betts planer, one 54-inch Pond planer with three heads, together with numerous smaller planers. There is also a floor boring and milling machine of the Niles type, with 8-inch spindle, having a 6-foot movement, a rise of 8 feet and a lateral movement of 15 feet. The smaller sized machine of the same type has a 6-foot spindle movement, an 8-foot lift and a travel of 12 feet. There is also a third tool of the same type, but of smaller size. There are two vertical boring mills in the machine shop equipment, one having a capacity of finishing 16 feet and the other 10 feet. The equipment of lathes includes one 76-inch by 25-foot, of the Putnam type; one 60-inch, one 54-inch, one 48-inch, one 42-inch and one 30-inch, besides numerous other smaller sizes. There are also included in the machine shop equipment a large slotter, drill presses, milling machines, shapers and other smaller tools, which are either belt or motor driven.

The Power Plant.

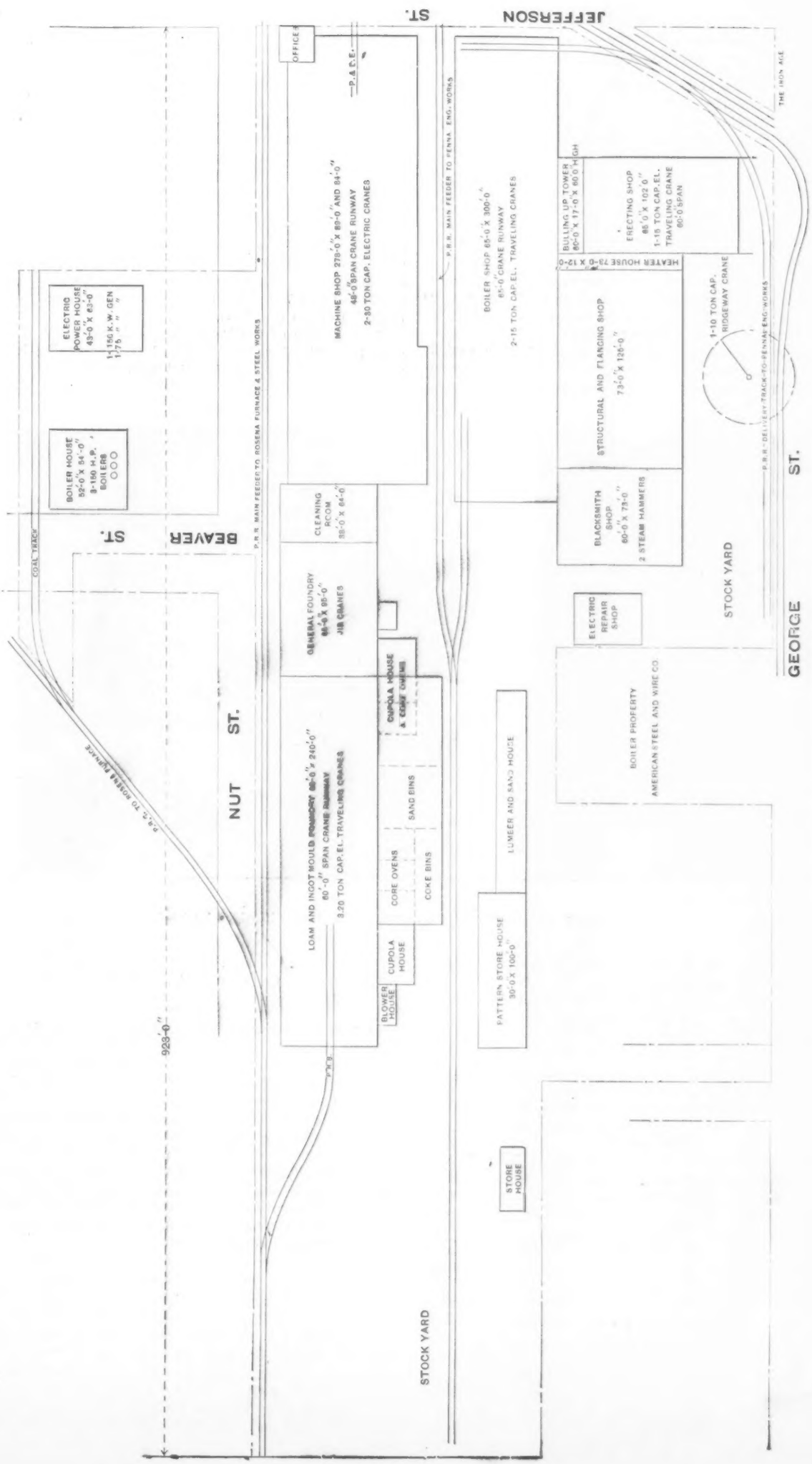
The boiler house is situated about 50 feet from the power house and is 52 x 54 feet in size, of wooden construction. It contains 500 horse-power water tube boilers of the Erie City Iron Works type. Coal for firing the boilers is unloaded from an inclined private track, on which the cars are run, and is delivered by gravitation in front of the boilers. The system for receiving and handling the coal is so perfect that only three men are employed in the boiler house, one for firing and two for unloading. Between the electric power house and the boiler house is being erected a water tower to contain a tank of 20,000 gallons capacity, water being supplied from a private well owned by this concern.

The electric power plant is contained in a brick building 43 x 63 feet, of steel and brick construction. It contains one 150-kw. Bullock generator and one 75-kw. generator of the General Electric Company type, both direct connected to Buckeye engines. Two air compressors in the power plant furnish compressed air at the rate of 800 cubic feet per minute to tools in the various departments. The power plant has been built large enough to give room for additional machinery when required.

The Boiler Shop.

The boiler shop is 60 feet wide by 300 feet long, of steel and brick construction, having been built only last year, and is very complete in all its detail. It is equipped with a bulling up tower 16 feet wide, 60 feet long and 60 feet high. The building is served by two 15-ton Pawling & Harnischfeger electric traveling cranes, together with numerous cylindrical jib cranes, these having pneumatic lift attachments. The boiler shop is equipped with two sets of bending rolls, capable of handling plates up to 1¼ inches thick, 10 feet in width. It also contains punches of the Hilles & Jones and Cleveland Punch & Shear Works type, ranging in size from 24 to 60 inches gap and capable of punching the heaviest kind of work. The shop also contains numerous bevel and angle shears. The crane runway is 32 feet high, which enables the company to set up or assemble very easily the largest and heaviest work if necessary. The old boiler shop is 76 x 125 feet, of brick construction, with slate roof, and is now utilized for flange and structural work. It is equipped with heavy flange machines, bulldozer and horizontal punches. Located outside of this building is a receiving yard for structural material, which is equipped with a Ridgway crane of 5 tons capacity for loading and unloading materials in this yard. Attached to and running at right angles to the boiler shop is a crane runway 60 feet wide by 110 feet long, where a large part of the structural work is fitted up. The department is served by a 15-ton Case Mfg. Company crane, together with jib cranes. The product of this department can be loaded directly into cars from its own switch, which runs into the extreme end of the building.

The building up tower in the boiler shop has two hydraulic riveters, one of 6 feet and one of 8 feet gap, capable of driving the largest sized rivets. A track between the boiler shop and machine shop is used for receiving coke, pig iron, limestone and foundry supplies. There is also a track in each end of the boiler shop, one for receiving material and the other for shipping it.



THE PENNSYLVANIA ENGINEERING WORKS.

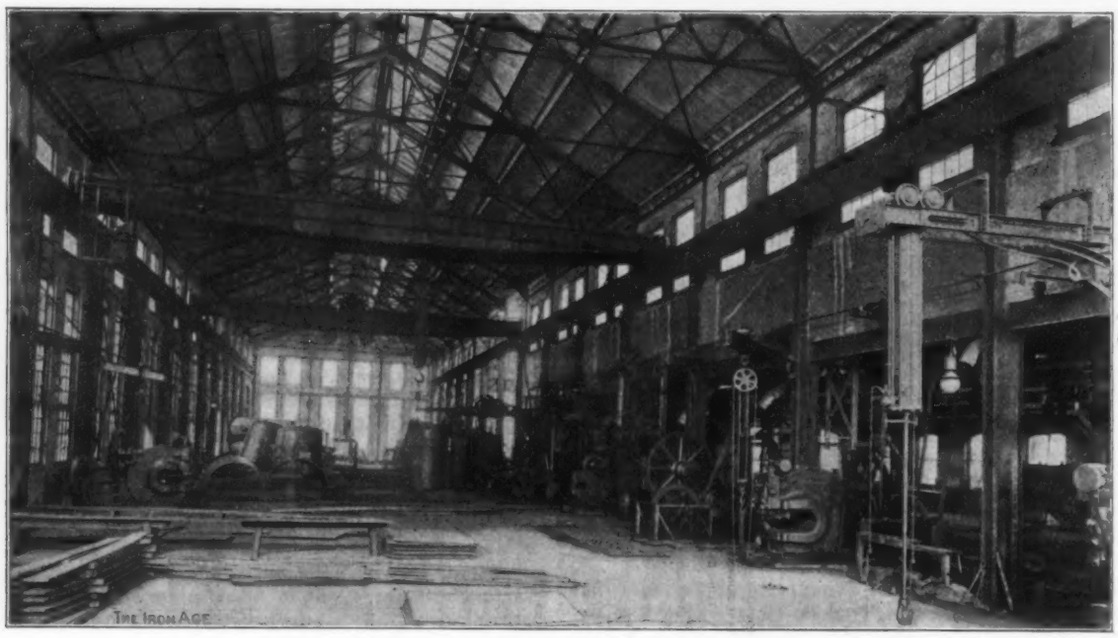
This shop presents so many interesting features that it is herewith illustrated.

The Forge Shop.

The forge shop is a steel and brick building 60 x 70 feet in size, and contains one 600 and one 1100 pound hammer. It also contains jib cranes for serving them, a heating furnace for large forgings and ten forge fires. The foreman's office is located in one corner of this building. At one end of the forge shop is the accumulator and fan house, which is equipped with an accumulator carrying 1600 pounds per square inch for flanging machines and hydraulic riveters.

The boiler shops are heated by the Sturtevant hot air system, the machine shop by William Bailey & Sons Company apparatus, and special effort has been made in the building of the new departments to secure an ample supply of light and to make the general surroundings of the employees as pleasant as possible.

The Pennsylvania Engineering Works have a varied line of products running from the smallest castings up to the heaviest blast furnace and steel works construction.



THE BOILER SHOP OF THE PENNSYLVANIA ENGINEERING WORKS.

The product of the foundry consists of ingot molds and stools, general castings up to 40 tons in weight, while the company makes a specialty of caustic pots and pans. In the machine shop and boiler shops are turned out roller tables, blast furnace castings, heavy plate work for blast furnaces, steel works construction, including converters, metal mixers, special cars, ladles and pressed steel molds for casting machines and tanks of all kinds. The forge and pattern shop departments are operated only as adjuncts to the rest of the plant, and their entire products are used in the other departments.

The Pennsylvania Engineering Works have built a large amount of blast furnace and steel works construction in the past two or three years, among the work done being the building of two complete blast furnaces at South Sharon and two at New Castle for the Carnegie Steel Company, and a blast furnace for the Rochester & Pittsburgh Coal & Iron Company at Du Bois, Pa. They have also remodeled a number of other stacks. The company has turned out a very large number of converters for Bessemer steel plants, having furnished converters to the Republic Iron & Steel Company, at Youngstown; Carnegie Steel Company, at New Castle; American Steel & Wire Company, at Cleveland; Cambria Steel Company, at Johnstown; Colorado Fuel & Iron Company, at Pueblo; Edgar Thomson Steel Works, at Bessemer; American Steel & Wire Company, at Shoenberger Works, Pittsburgh, and Tennessee Coal and Iron Company, at Birmingham, Ala. They recently furnished converters for the new Bessemer plant of the Deering Harvester Company, at South Chicago. They have also built metal mixers for most of the above named concerns and have furnished a large amount of equipment for the new steel plant of the Lackawanna Steel Company, at Buffalo, N. Y., including a number of open hearth charging buggies and 10 65-ton ladles. They have done the heavy plate construction work for the open hearth furnaces of the Standard Steel Works, at Burnham, Pa., and for the Buckeye Malleable Iron & Coupler Company, Columbus, O. They have also furnished a large number of hot metal, cinder, bin filling and pig metal cars for a number of concerns. The engineering department is an important feature of this plant, giving employment to about 120 skilled draftsmen. During normal times the works employ between 600 and 700 men in the various departments, and from 150 to 200 men in the field.

The officials of the Pennsylvania Engineering Works are: Edward King, president and treasurer; Edwin N. Ohl, vice-president; C. L. Baldwin, secretary; E. W. Beadel, general manager and chief engineer, and W. H. Shippler, superintendent. They are represented in Great Britain by Tom Cobb King, M. E., London, England.

A boat service which will constitute a record in some respects is to be inaugurated by the London & Southwestern Railroad of England as a result of the recent decision of the American Steamship Line to make Plymouth its English terminus, in place of Southampton. The distance to London, 230¾ miles, will be covered without a stop, this being a greater distance than is at present scheduled for any continuous run on any railroad in the world. The time required for the trip will be 4½ hours, or 270 minutes, making the schedule speed 51.27 miles per hour. Though by no means a record, this is very creditable, as the nature of the track is quite difficult on account of curves and grades.

Of the 37 war vessels belonging to the British Navy which have been subjected to speed tests during the past year, 28 attained speeds in excess of 21 knots, 12 of them being cruisers and 16 torpedo craft. Of these 12, 7 were armored cruisers of about 23 knots speed. This is remarkable, as prior to 1895 no ships in the British Navy, except torpedo craft, and the "Blake" and the "Blenheim," which were designed for 22 knots (a speed which neither reached on trial), had a speed of as much as 21 knots.

The Master Car Builders and Steel Cars.

At their recent convention at Saratoga, N. Y., the Master Car Builders' Association devoted considerable attention to the subject of steel cars.

One of the reports showed that it was found, from answers to questions received from 23 roads operating steel cars, that the oldest of such cars have been in service eight years, and as yet no steel cars have been put out of service, due to deterioration from age. They therefore had nothing definite on which to base a report as to the depreciated value of steel cars and cars constructed with steel underframes. They recommended, however, that a depreciation of 4 per cent. upon the yearly depreciated value be used for the bodies of all steel cars and cars constructed with steel underframes, allowing the present 6 per cent per annum upon the yearly depreciated value of trucks to remain as at present in the rules, but no depreciation should exceed 60 per cent.

An exhaustive paper by William Forsyth dealt with the use of steel in passenger car construction, in which he accorded to car manufacturing companies almost all the credit for the development of the modern passenger car. At the same time he dwelt upon the fact that, contrary to the policy observed in strengthening freight equipment, larger capacity in passenger service has been obtained at the expense of strength by increasing the length of the car. Under these conditions American railroads are constantly running the risk of collision between strong steel cars with weak wooden passenger cars.

Attention was called to the general use of steel underframes for passenger equipment in foreign countries for many years, a larger part of the body of the best foreign passenger cars being of steel. It contributes to greater strength and stiffness and risk is greatly reduced. In this country, while the value of steel in car construction is realized and has been so largely employed for freight cars, its application to passenger cars has been surprisingly limited. In reference to the use of steel platforms, angles and plates, in end framing, Mr. Forsyth said that it is a half hearted makeshift compared with the complete steel underframe which should be coming into use. While it might be proper to reinforce old equipment in the manner mentioned, there seemed to be no good reason why new passenger equipment should not be built with entire steel underframes.

Preservative Coatings on Steel Cars.

The Committee on Best Prevention of Rust on Steel Cars reported the following suggestions for new cars:

The steel should be thoroughly cleaned of all rust and furnace scale before the car is assembled.

All joints before assembling should be thoroughly coated with coal tar.

After car is assembled, all grease should be thoroughly removed from the steel, and same given a good coat of carbon or graphite paint on the outside and underneath, and the inside a heavy coat of crude petroleum, coal tar applied hot, or some similar substance.

The outside to be given a second coat of graphite or carbon paint as may be desired.

For old cars:

All scale and rust should be removed wherever it appears on the car by steel brushes or scrapers; and in the case of the inside of the car, by any of the above methods or by the use of pneumatic hammers or mauls.

After all scale and rust have been removed the car should be thoroughly cleaned with steel scrapers or wire brushes, and blown out with air, in order to present a clean surface for the paint.

The methods of painting recommended for new cars should be followed out in the case of old cars, after a clean surface is obtained.

The committee expressed the opinion that if the foregoing were followed out and care taken to repaint the outside and underneath cars at least every 18 months or two years, coating the inside with crude petroleum or coal tar about once a year, excellent results will be obtained.

A new process for hardening iron has been developed by two Prussian inventors, which consists in adding to iron a small percentage of phosphorus combined with a large amount of carbon. The iron is heated in a tempering powder consisting of bone dust to which are added 300 grains yellow prussiate, 250 grains cyanide of potassium and 400 grains of phosphorus. The receptacle is well closed and luted with clay, and raised to a clear red or white heat. The material treated is then taken out and plunged, while still hot, into a warm bath. It is claimed that this will harden the surface of a piece of iron weighing 400 pounds to a depth of about 0.04 inch, and that the iron can neither be cut nor chipped by the best steel used, and that it can be readily welded.

May Iron and Steel Imports and Exports.

Our May exports of iron and steel were the largest in many months. The commodities for which weights are given showed a particularly handsome gain on the previous months of this year, aggregating 107,646 gross tons, against 75,747 tons in April, 89,332 tons in March, 57,558 tons in February and 49,880 tons in January. The comparison with May of last year and the five months then ended is still more imposing, as will be seen from the following table:

Exports of Iron and Steel.

	May.		Five months.	
	1904.	1903.	1904.	1903.
Commodities.	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron	2,031	822	19,054	5,804
Scrap	2,185	393	8,911	1,706
Bar iron	2,715	2,021	12,851	9,525
Wire rods	1,087	936	5,312	11,172
Steel bars	2,533	1,318	9,510	8,909
Billets, ingots, blooms	31,527	57	140,100	622
Hoop, band, scroll	149	112	1,563	993
Iron rails	....	20	1,409	46
Steel rails	41,388	295	83,146	3,262
Iron sheets and plates	711	309	1,674	1,022
Steel sheets and plates	2,811	1,678	11,023	6,064
Tin plates and terne plates	988	7	2,951	160
Structural iron and steel	4,375	2,881	15,362	12,867
Wire	11,476	9,744	49,978	45,012
Cut nails	780	677	3,742	3,207
Wire nails	2,642	3,160	12,472	11,758
All other, including tacks	248	261	1,105	924
Totals	107,646	24,691	380,163	123,053

The total value of the May exports, including machinery and other manufactures, but excluding ore, was $11,159,712, against $8,330,063 in May, 1903. For the eleven months ended with May the totals were $100,267,566 and $88,169,525, respectively.

Imports show a slight increase as compared with April, but a heavy falling off when the figures for May, 1903, are considered. The movement for the month and five months in commodities for which weights are given is presented in the following table:

Imports of Iron and Steel.

	May.		Five months.	
	1904.	1903.	1904.	1903.
Commodities.	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron	5,184	57,139	39,950	372,577
Scrap	1,290	11,575	6,222	45,253
Bar iron	1,317	2,147	7,315	18,401
Rails	8,918	7,151	23,640	61,618
Hoop, band and scroll	28	12	966	511
Billets, slabs, bars, &c., steel in forms n.e.s.	547	26,389	5,946	145,728
Sheets and plates	114	773	2,868	3,483
Tin plates and terne plates	6,422	2,444	27,654	21,608
Wire rods	1,067	1,673	6,390	8,440
Wire and articles made from	419	463	2,016	1,899
Structural iron and steel*	380	....	4,735	....
Chains	64	19	197	176
Anvils	31	35	82	65
Totals	25,781	109,820	127,981	679,759

* Included in "All other" prior to July 1, 1903.

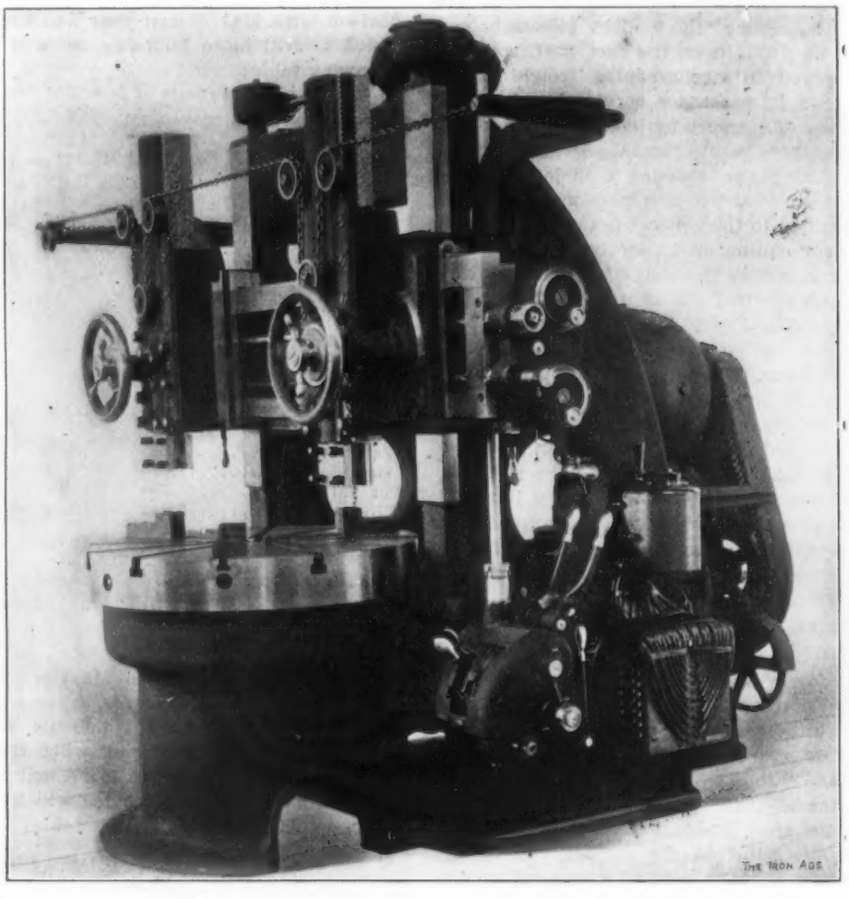
The value of all imports of iron and steel and manufactures thereof, excluding ore, was $1,920,334 in May, against $1,733,176 in April. For the eleven months ended with May the total value was $24,998,010, as compared with $47,012,535 in the corresponding period of last year.

The New Gisholt Boring and Turning Mill.

The distinguishing features of the Gisholt boring mills, manufactured by the Gisholt Machine Company, Madison, Wis., are as follows: A powerful friction back geared head stock; convenient positions of all operating levers; positive automatic stops for all feeds; feed dials which may be set to trip any feed at any predetermined point; micrometer index dials on all feed gears reading to 0.0010 inch, reducing the time consumed in scale and caliper work and requiring but little calculating on the part of the operator; single pulley drive, giving a constant belt feed; ease of adaptation to motor drive without increase of floor space, and incasement of all gears. In general appearance these mills present a massive design, yet the metal is so distributed as to minimize the strains attending work at high speed and with heavy cuts. The machine requires no special foundation, being practically self contained.

That a friction head stock may be successfully applied to large machines has been demonstrated by this company in its turret lathes. The use of a friction head stock on smaller machines where a variable speed in the spindle is required is common, but its application in a boring mill is decidedly unique. The head stock and driving mechanism being located at the rear of the machine are well out of the way, but may be controlled by levers within easy reach of the operator. The head stock is self oiling and, being of the friction type, it is unnecessary to start or stop the motor or shift the belt to set the table in full operation or move it a fraction of a revolution. This latter feature is particularly handy in the setting of the cutting tools, as it obviates pulling the belt by hand to turn the table to any certain position. This head stock has other features which reduce the cost of motor equipment, as with it a variable speed motor having speeds up to 50 per cent. above normal will give an almost ideal range of speeds. Six mechanical speed changes are provided, obtainable by levers, as before stated, and there are 12 table speeds. All feeds may be stopped automatically by the feed tripping index dials, which may be set to trip at any point either on the vertical or horizontal feeds.

All standard machines are fitted, as shown in the illustrations, with two heads, independent in their action and controllable from either side of the machine. Ten feeds are available, all operated either by power or by hand. Each head is fitted with a positive stop, so that the center of the down slide may be brought directly over the center of the table. A turret head may be substituted for the right hand head, and either may be fitted for screw cutting. The down slides are provided with large bearing surfaces and taper gibs to take up wear. Through a friction device connected with the feed gear mechanism the heads are prevented from jamming together and injury to the machine and feed gears through carelessness is avoided. The cross rail also is provided with large bearing surfaces, is of a rigid construction and is raised and lowered by power. The table may be a universal combination chuck, fitted with three movable top jaws, or a face plate with independent jaws.



VIEW FROM THE WORKING SIDE OF A GISHOLT BORING MILL DRIVEN THROUGH CHAIN BY ELECTRIC MOTOR.

The spindle revolves on a large self oiling babbitted surface. The table is driven by spur pinion and is powerfully geared. All gears on the machine are incased.

These mills are manufactured in six sizes, 34, 42, 54, 60, 64 and 74 inch, respectively, and may be seen at the company's exhibit in Machinery Hall, Block 14, aisles F and 3, at the St. Louis World's Fair.

The Drawback on Hack Saw Blades.—The Treasury Department has prepared a series of regulations for the allowance of drawback of duty paid on imported sheet and ribbon or strip steel used in the manufacture of hack saw blades for export. The regulations, which have been prepared upon the application of the L. S. Starrett Company, Athol, Mass., are in part as follows: "The preliminary entry must show the marks and numbers of the shipping packages and the number of each style of saw blades, described as they are described in the manufacturer's sworn statement, contained in each package and in the entire shipment. The drawback entry must show the net weight of the saw blades as exported, to-

gether with the weight of the steel in condition as imported which has been used in their manufacture. In liquidation, the amount of imported sheet and ribbon or strip steel which may be taken as the basis for the allowance of drawback may equal the quantities consumed, as declared in the drawback entry, provided that in no case shall such amount exceed in weight the net weight of the saw blades in condition as exported, with 10 per cent. of such exported weight added thereto to compensate for loss incident to manufacture."

The American Car & Foundry Company.

The report of earnings of the American Car & Foundry Company for the fiscal year ended April 30 was submitted to the stockholders at the annual meeting of the company, held in Jersey City, June 30.

The total net earnings for the year amounted to $5,585,370, a decrease of $2,861,151 as compared with those of the previous year, which was perhaps the greatest year for the car building industry in the history of the country, but the company was able to add $1,500,000 to its already large surplus. The total surplus stands at $12,227,000.

The company cut down the items of renewals and repairs by about 13 per cent., and the item of new construction by a little more than 50 per cent., which is not surprising, in view of the falling off in the amount of business done, represented by a drop of 33 per cent. in net earnings. The report states that materials on hand are, for the purpose of the balance sheet, inventoried at present market prices, and that 75 per cent. of this material will be used on work for which the company already has contracts on its books. The report gives the following statement of the working capital:

Working capital April 30, 1903	$13,669,688
Add surplus earnings for the year ended April 30, 1904	1,496,863
Total	$15,166,551
Less expended for permanent improvements and real estate	539,395
Working capital April 30, 1904	$14,627,156

The income account follows:

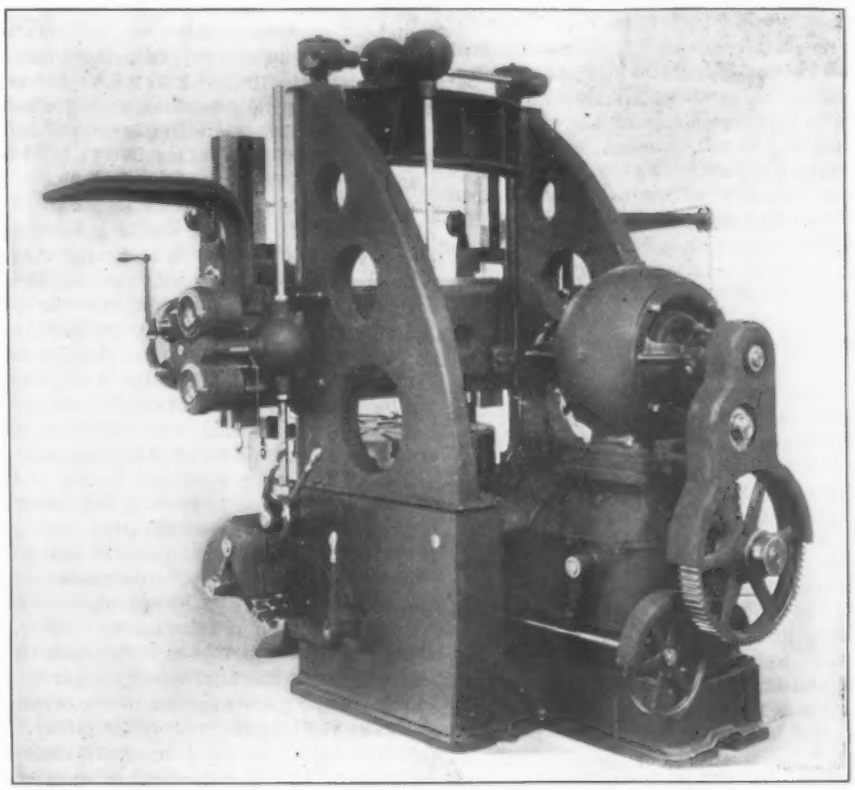
		Decrease.
Net earnings	$5,585,379	$2,861,151
Renewals and repairs	905,767	138,632
Balance	$4,680,112	$2,722,519
New construction	183,249	159,480
Applic. to div.	$4,496,863	$2,563,039
Preferred dividends (7 per cent.)	$2,100,000	.....
Common dividends (3 per cent.)	900,000	.....
Total dividends	$3,000,000	.....
Surplus	$1,496,863	$2,563,039
Previous surplus	10,730,453	4,059,902
Total surplus	$12,227,316	*$1,496,863

* Increase.

The general balance sheet is as follows:

Assets.

		Decrease.
Cost plant and property	$57,060,765	*$2,693,770
Cost steel plants	539,395	2,154,375
Materials on hand	6,034,814	7,098,989
Accounts receivable	5,527,161	4,086,426
Securities other companies	1,799,214	14,649
Cash	4,089,369	*1,626,312
Totals	$75,050,718	$9,034,357



REAR VIEW OF A GISHOLT MILL, SHOWING GEAR DRIVE INSTEAD OF CHAIN.

Liabilities.

Preferred stock	$30,000,000	.....
Common stock	30,000,000	.....
Audited vouchers	2,611,428	$10,318,978
Pay rolls	211,974	212,242
Surplus account	12,227,316	*1,496,863
Totals	$75,050,718	$9,034,357

* Increase.

All of the retiring directors were re-elected.

Chile enjoys a practical monopoly of the deposits of nitrate of soda. The production in 1903 was 31,683,000 quintals (each of 101.4 pounds), showing an increase of 1,594,000 quintals, or 5.26 per cent., over the production for 1902, which was 30,089,000 quintals. The valuation in 1902 was $42,000,000; in 1903, $51,000,000, a gain of $9,000,000, or nearly 12 per cent. The value per quintal increased from $1.40 to $1.61. The cost of shipping was in 1903 about $5,000,000. An export tax of 56 cents per quintal brought to the Chilean Government a revenue of $17,750,000.

The Iron Industry of Germany.—II.

The Minette District.

All the great undertakings of this region have their own ore mines. The Lorraine Luxemburg deposit consists of a series of nearly horizontal veins of unequal value. Plunging under the French plateau of Longwy, Briey and Nancy, they have their outcrop in German Lorraine. One of these beds is the principal source of supply, being worked almost always by tunnels, and more rarely by shafts or by open cast. This is the "gray" vein, the ore of which runs from 28 to 38 per cent. of iron and has a thickness on the average of 4.4 feet. The grade varies little from 30 to 33 per cent., the richer ores being either exported to Belgium or to France, or being shipped to the Westphalian furnaces. The ore, which is highly calcareous, does not call for any charging of stone. Phosphorus varies from 0.7 to 1 per cent., and the ore carries 0.35 per cent. of manganese.

In Luxemburg it is the "red" bed which is being worked. It is thicker, being about 11.50 feet. Its grade is similar to that of the gray vein. All these ores are readily reduced, are regular in their tenor of phosphorus and are cheaply mined.

In spite of the recent increase in the wages, the cost of labor per ton does not go beyond 1.20 marks (29 cents), which carries the total cost to about 2 marks (49 cents) per ton. Some of the open cut mines of Luxemburg are running at less than 1.50 marks (37 cents), while the cost of some of the pit mines in Lorraine rises to 2.75 marks (67 cents). In any case the selling price in the open market did not rise to 2.85 marks (70 cents) in 1902, and the official price at the mines was 2.58 marks (63 cents). The transportation to the blast furnaces, often done by aerial rope ways, adds but little to the cost, so that it is fair to estimate the same at 2.25 marks (55 cents) delivered to the tunnel head for ore running from 28 to 33 per cent. of iron.

The Saar district also consumes nothing but Minette. The ores from the northern part of Lorraine or from Luxemburg are delivered by rail, the distance being 51 to 71 miles, at a cost for freight of 2.50 to 3 marks (51 to 73 cents). The ores of the frontier region in the vicinity of Nancy are brought partly by canal, a distance of 90 to 95 miles, at a cost of 1.50 marks (37 cents) per ton. The cost price of the Minette to the furnaces, under the most favorable circumstances, ranges between 4.75 and 5.25 marks ($1.16 to $1.29) per ton. The German mines in the region produced in 1902 17,000,000 tons of Minette, of which 1,100,000 were shipped to Westphalia, 3,800,000 tons were exported, and 12,000,000 tons were consumed locally. This production is increasing rapidly from year to year, having grown by 30 per cent. in 1903. On the basis on the average of an annual extraction of 20,000,000 tons the life of the deposit, according to the latest estimate, would be 125 years. The most recent purchases of mining property have been made at very high prices, as much as 14,000 marks per hectare for area containing about 100,000 tons per hectare. However, since the large works are already in possession of the greater part of the mining territory, this increase in the valuation affects but little the prices, so far as the works are concerned which are now under consideration.

Basic Bessemer pig should carry 1.70 to 2 per cent. of phosphorus and 1.50 to 1.60 per cent. of manganese, so that it is necessary to add about three units of manganese to the furnace charge. This addition represents a cost of about 2 marks (49 cents) per ton. It is provided for by manganiferous ores from Siegen or Nassau carrying 20 or 25 per cent. iron and 8 to 10 per cent. manganese, or by foreign ores carrying 50 per cent. manganese. The furnaces of the district charge with their Minette ore a certain amount of converter and furnace cinders.

Fuel Supply of the District.

In Lorraine and in Luxemburg the furnaces depend for their supply of coke upon the Westphalian syndicate. The cost of transportation to the furnace is 7.90 marks ($1.94) at the most, handling included. The price of coke at the ovens has varied from 11 marks ($2.70) in 1895 to 17 marks ($4.16) in 1902, and to 15 marks ($3.67) in 1903. Of the four steel works in the district which own collieries only one is able to take care of its own requirements. Another produces half of its coking coal, the colliery not being up to the full production as yet. The two others are opening out a colliery in Westphalia and are making about one-quarter of their coke in the Saar district. The greater part of the coke for Lorraine, therefore, comes from the Ruhr syndicate or from collieries with which the works have agreements.

The cost of the coking coals in Westphalia varies, according to the accounts published by the coal companies, from 7.75 marks to 8.80 marks ($1.90 to $2.16), all costs and sinking fund provisions included. The yield of the by-product ovens is 76.42 per cent., the cost of coking being 1.13 marks (28 cents). The conclusion is that the cost of the coke, counting the slack at the average cost price of the mine, foots up, under the most favorable conditions, to 11.15 marks ($2.73). The profit on the sale of crude tar amounted to 0.56 marks (14 cents) to the Harpen company in the fiscal year 1902-1903. This makes the net cost of the coke 10.60 marks ($2.59). The greater part of the coking plants are now recovering sulphate of ammonia and benzoles. Making allowance for the writing off on the cost of the expensive by-product ovens and the subsidiary plant, say, 0.75 marks (18 cents), the total profit on the by-products ranges from 1.65 marks (40 cents) in 1902 to 3.60 marks (88 cents) in 1903, per ton of coke, this depending upon the selling prices of the products. This reduces the net cost of the coke to 9.50 marks ($2.19) or 7.50 marks ($1.71) per ton. The minimum cost of cokes made in Lorraine might, therefore, be considered 16 to 19 marks ($3.92 to $4.65), according to conditions, to the works which have their own collieries in the Ruhr district. These figures, however, so far as the present is concerned, may be considered absolutely exceptional. The coke bought from the syndicate costs, laid down in Lorraine, 22.90 marks ($5.61).

In the Saar district the collieries belong to the State and the coking plants to the steel companies. The coal, which is very impure, carrying from 18 to 30 per cent. ash, must be washed, which reduces the yield in coke to 46.50 per cent. Two of the works are satisfied with this fuel, which they compress before charging it into the coke ovens, thus improving the yield and the quality. They are gradually supplanting their ordinary ovens by by-product ovens. The price of coal in the Saar district has risen considerably. Ten years ago the works could, with their slack coal at 5.85 marks ($1.34) at the oven, make their coke at 14.50 marks ($3.55). To-day the lowest grades sell at 7.20 to 9.40 marks ($1.76 to $2.34), not washed, and the high quality slack at 10 marks ($2.45). The cost of transportation to the ovens at the furnaces is 1.40 to 1.60 marks (34 to 39 cents). By-product coke, therefore, would cost approximately 12 to 16 marks ($2.94 to $3.92), and ordinary oven coke pretty close to 17 marks ($4.16). The Lorraine works, which make a part of their coke at Saarbruecken, have some advantage, because the cost of transportation does not go beyond 3 marks (75 cents), but they cannot charge into their blast furnaces more than 20 to 25 per cent. of these tender cokes. Besides, the steel works in the Saar district receive a large part of their pig iron from furnaces owned by them, located in Lorraine or in Luxemburg. The freight is about 3 marks (75 cents). Burbach draws on Esch; Stumm, which has a colliery in Westphalia, draws on Ukange; Roechling on Thionville and Dillingen on Rodange (for all of its pig iron). On the whole, the Saar district is less favored, as compared with Lorraine, in the manufacture of pig iron.

Blast Furnace Practice.

The blast furnaces of the Minette district ordinarily produce 130 to 200 tons in 24 hours. The furnaces in the Saar district are limited by the mediocre quality of the local coke. The furnaces in Lorraine make 200 to 260 tons, with a yield of the charge to 28 to 33 per cent. The average daily wages of common labor are 3.75 marks (92 cents). The cost of conversion is, therefore, 4 to 5 marks ($1 to $1.25), inclusive of all repairs, but exclusive of general expenses and writing off.

It is well known how rapid has been the development in this district in the utilization of blast furnace gases

for driving electric motors, and even the blowing engines and rolling mill engines are operated by gas engines. Besides, slag plants are connected with the blast furnaces, which make from 3,000,000 to 5,000,000 bricks per year and, besides, ship from 3000 to 10,000 cars of granulated cinder. This is quite an appreciable source of profit.

The most recent works in the Lorraine-Luxemburg district have been placed close to the ore, and this can be considered typical. The following represents cost of production under these conditions:

	Marks.
3.4 tons of Minette, scrap, &c., at 2.25 marks per ton, on the average	7.65
3 units of manganese	2
1.15 tons of coke, at 19 to 23 marks	21.85 to 26.45
Cost of conversion, not counting value of cinder	4.50
Total	37 to 40.60

The lower figure is somewhat exceptional, but the higher figure no longer represents the general status of the large works in this region.

In the Saar district the corresponding cost would be 38 to 43.50 marks ($9.31 to $10.66). Pig iron brought from Luxemburg comes up in cost to the latter price.

Steel Manufacture.

The steel works in the Lorraine-Luxemburg basin are Differdange, a new plant, and one of the most interesting in Europe, on account of its equipment; Dudelange, which has made steel since 1885; Au Metz and Rodange date from 1900, and Hayange and Moyeuvre, both belonging to the firm of De Wendel, which made their first cast in 1882, and which have been recently re-equipped with powerful trains. All these works are operated under excellent conditions. Their capacity is considerable, four of them producing from 260,000 to 300,000 tons of crude steel per year, and one being on the point of being brought up to the capacity of the last named.

The pig iron is conveyed in a liquid condition to the converters with some scrap. The loss of conversion in the basic Bessemer, inclusive of Sunday iron, reaches 12 per cent. The length of the operation is 20 minutes. Only one vessel out of four is blown at one time, and the German works rarely go beyond a production of 50 heats per shift.

The converters are of 12 to 20 tons capacity, and the largest daily production is 1500 tons per 24 hours. It is a known fact that the sale of the phosphoric slag yields an additional profit of about 3.50 marks (86 cents). The average wage of the steel works men is now 4.10 marks ($1). The Bessemer plants do not require any coal for their blowing engines, all the steam for them being obtained from the blast furnace boilers or from coke ovens. It is estimated that, under these conditions, the cost of manufacturing of the basic Bessemer ingot is 10.50 marks ($2.57), exclusive of general expenses and sinking fund. Deducting the profit from the slag, this leaves a cost of manufacture of 7 marks ($1.71.) The blooming trains usually utilize steam produced from waste heat, and the same will be true of the large beam trains when the blowing engines are operated by gas. The smaller trains in the most recent plants, both in Lorraine and in Westphalia, are driven electrically. The soaking pits in Germany are not heated, and the tendency is to roll in one heat to the bloom, billet, rail or beam, reheating being purely accidental. There is no occasion, therefore, to make provision, unless reheating blooms, for the consumption of fuel for the rolling mill down to finishing large sections. The usual quantity is 200 to 240 kilograms. The majority of German finishing trains are coupled by twos to the same engine and work alternately.

In Lorraine the steel works consume Saar coal, which sells at 10 to 15 marks ($2.45 to $3.67), according to quality, plus 3 marks (73 cents) for freight. In Luxemburg Belgian or Westphalian coal is received. The quantity of ingots required to produce the bloom is 1.07 tons; the scrap from the bloom to the billet without reheating is 5½ per cent. In the manufacture of rails 1.12 tons of blooms are required to the rail, with 110 kg. per ton of scrap to the rail. For beams the charging weight of blooms is 1135 kg., with 125 kg. of scrap. Reheating, when it is practiced, increases the charging weight 15 to 20 kg.

Cost of Producing Steel

The manufacturing cost, outside of fuel, may be estimated, exclusive of general expenses and sinking fund, at 2 marks (49 cents) for blooms, 4 marks (98 cents) for billets, 10 marks ($2.45) for rails, and 8 marks ($1.96) for beams. The value of the scrap must be deducted therefrom.

In the Saar district the three works of Burbach, Stumm and Roechling produce 300,000 tons of steel each. They remelt part of their iron and the reheating of the bloom is frequent. But at least the two first of the companies effect a pretty important economy by utilizing for the production of steam the waste gas of their coke ovens. The Dillingen steel works produce 200,000 tons. Although these older mills do not possess the unity and harmony of layout of the Lorraine steel works, built from comprehensive plans, their equipment has, generally speaking, had the advantage of the important reserve funds which the Germans are accustomed to withdraw from their annual profits; but in spite of the high character of the plants, and in spite of proximity to the coal mines, the steel works of the Saar district cannot produce their crude steel and their larger sizes of shapes at so low a cost as the Lorraine and Luxemburg steel works.

There must be added to the cost of manufacturing indicated above the general expenses, which include charges for workmen's relief—not less than 1 to 2 marks (24 to 49 cents) per ton—the general cost of administration and taxes, which amounts to a similar figure (not counting collieries and coke plants). The sinking funds must be charged upon a capital invested in the plants alone of 60 to 100 marks ($150 to $200) per ton of annual product. Therefore, counting a life of 15 years, they amount to 2 to 3.50 marks (49 cents to 86 cents) per ton produced per year, being dependent upon the actual output of the plant. The total charges of this character range from 4 to 7.60 marks (98 cents to $1.86), the average, however, not being less than 6 marks ($1.47).

Taking all these considerations into account, the result is that the total cost of manufacture of steel in the works of the Lorraine-Luxemburg district, general expense and sinking funds included, may be placed as follows, the figures under I applying to works owning mine and coke plants and rolling direct, and those under II being plants buying coke from the syndicate and rolling from reheated blooms:

	I. Marks.	II. Marks.
Basic pig, exclusive of general costs	36.00	40.60
Basic ingot, exclusive of general costs	48.05	53.30
Bloom*	56.65	64.30
Billet*	64.15	74.95
Bars*	69.20	80.35
Beams*	70.20	81.35
Rails*	71.65	82.65
Plates and sheets*	91.85	102.65

* Inclusive of all general expenses and sinking funds, exclusive of interest on capital invested in plant and occasionally in collieries.

It is understood, of course, that these figures are presented only as approximate valuations, whose object is solely to indicate the conditions affecting and the practice in the district under consideration. They vary greatly, according to the full utilization of the capacity of the plant, which is sometimes limited by the inadequacy of one or the other of its parts, Bessemer blowing engines, furnaces, pits, &c. It is often influenced also by commercial or syndicate considerations. Nor is account taken in these figures of the economies due to the use of waste furnace gas nor of profit on slags. It is necessary to add to these figures also the interest charge on bonded indebtedness, which, on an average, is at least equal to the capital stock. It amounts to about 3 marks (73 cents) per ton on the products sold.

The transportation of the products of the Lorraine district to the sea, a distance of 335 kg. (208 miles), is made by rail, since the Moselle Canal is not yet in existence. It amounts to at least 6 marks ($1.47) to Antwerp, inclusive of loading.

The greater part of the basic Bessemer plants utilize their mill scrap in open hearth furnaces, which for this reason operate very cheaply. Still, although this branch of manufacture has, at least in the Saar district, become

really of some importance, it does not yet interest the international trade.

It will be finally remarked that the transportation of the coke from the Ruhr district to Lorraine is very expensive, and that there is reason to expect on this account economies which have been claimed for a long time by those interested.

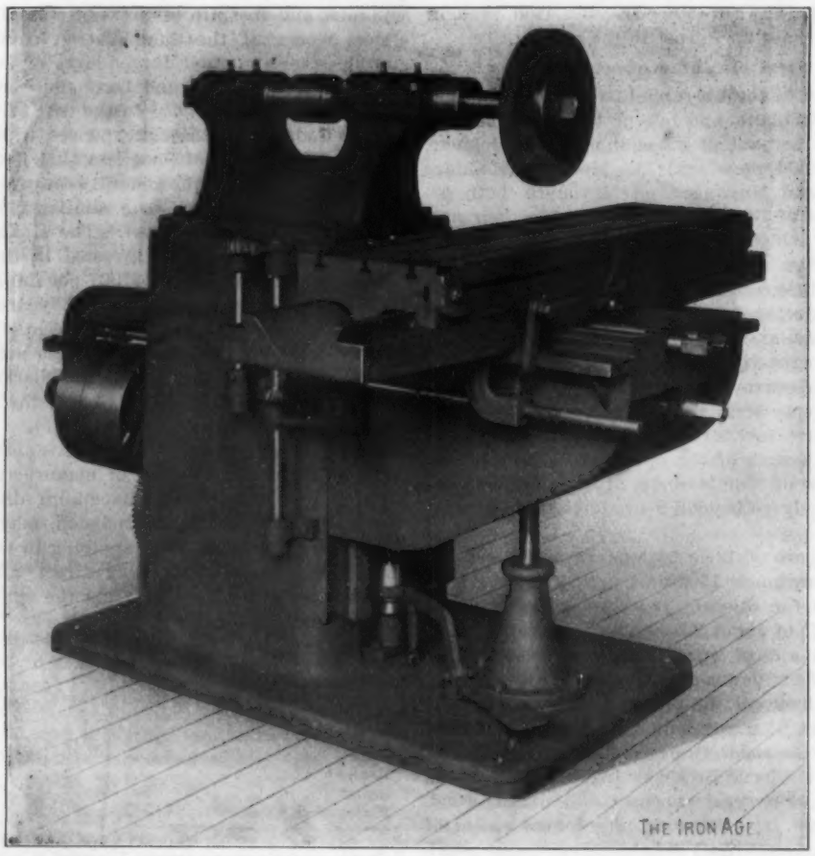
The Goddard No. 6 Surface Grinder.

Without making claim to any new motions, the surface grinder here shown contains an adaptation of several well-known ones, which results in giving it a range of operation greatly exceeding any of its type. The finishing of dies and brick molds and flat work in general is the use to which the machine is particularly applicable. It is massive, rigid and powerful enough to take rough stock and grind it to a finished polish, and is designed for strength and durability, with a resultant economy in repairs.

The steel spindle, 2¼ inches in diameter, is turned and ground accurately and runs in bearings of ample dimensions to give it the required support. It is provided with a fiber thrust collar and nuts to take up the wear. The bearings are adjustable, self oiling and dust proof. The table has three T-slots for securing the work to the table, and power longitudinal feed is obtained by straight and cross belts 1½ inches wide, running on 12-inch pulleys, shown at the rear of the machine. The drive is geared 8 to 1 and reciprocates the table through a pinion engaging a rack on the under side of the table. A lever attached to the front of the carriage, actuated by the adjustable dogs attached to the work table, operates the belt shifter through a series of links, a splined shaft and segment gears, all of which may be seen in the illustration. The dogs determine the length of the stroke and may be changed in position while the machine is running. The power feed is thrown out by the foot lever on the base whenever it is desired to adjust the machine by hand. The knee supporting the table has a vertical adjustment of 10 inches and is raised or lowered by a screw operated by the lower shaft in the front of the knee, without interfering with the shipping motion.

Power feed may be applied to the cross movement when desired, though the machine shown is not so provided. This is obtained in connection with the shaft at the left of the knee which operates the longitudinal feed and provides a feed at the end of the stroke only. A graduated disk may be applied to the feed screw, governing the amount of stock removed to a thousandth of an inch. All three motions of the table can be operated by hand, using the same crank handle for each. The following are the principal dimensions:

Hight from floor to center of spindle	48½ inches.
Length of spindle over all	41½ inches.
Size of pulley on spindle	4 x 4 inches.
Size of table	12 x 48 inches.
Size of base	30 x 50 inches
Size of wheel	12 x 1½ inches.
Weight complete	3,000 pounds.



THE GODDARD No. 6 SURFACE GRINDER.

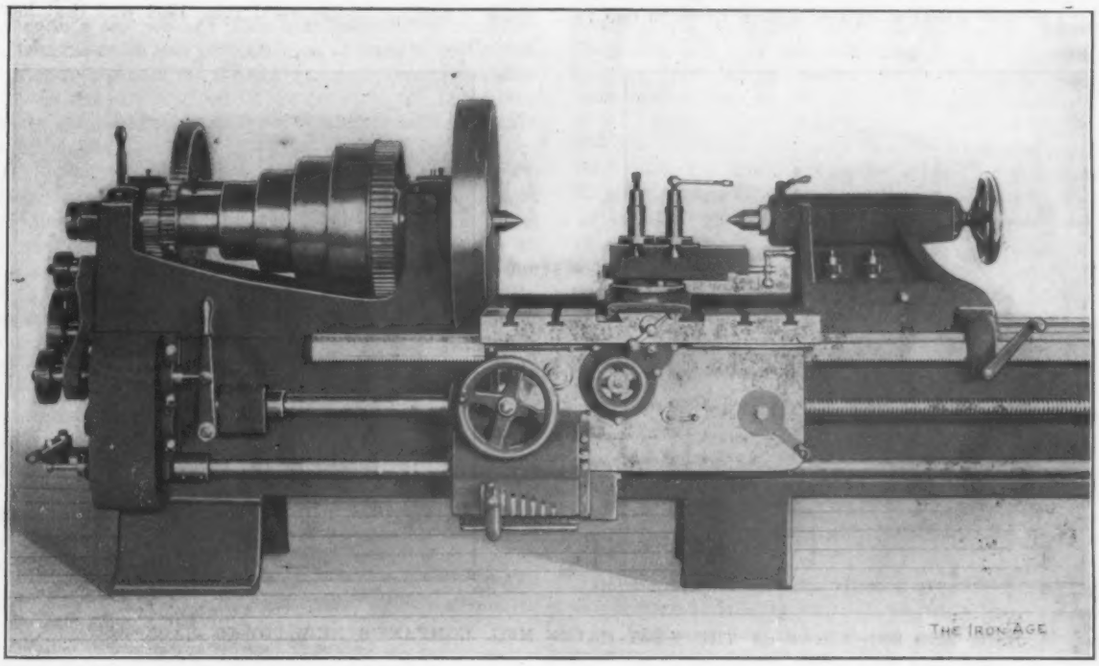
The machine may also be made with the spindle arranged to reciprocate where a special appearance is wanted in the finish. All parts are easily accessible from the outside, from the front or through a door in the base, on the opposite side of the machine from that seen in the engraving. The machine will grind work 12 inches wide and 42 inches long. It is made by the Goddard Machine Company, Holyoke, Mass.

The Bureau of Forestry has for some time been making studies and experiments designed to improve the present conditions, and to prevent the exhaustion of the timbers, from which railroad ties are made. Bulletin No. 50, "Cross-Tie Forms and Rail Fastenings, with Special Reference to Treated Timbers," by Dr. Hermann von Schrenk, which has just been published, gives the latest results of these investigations. Besides suggesting the classification of ties, so that the smaller sizes of ties will be sold at their market value, the bulletin advocates preservative treatment for the softer woods and the use of screw spikes.

The Draper Quick Change Feed Lathe.

An engine lathe equipped with a quick change speed device by means of which the operator has command of a large number of screw pitches or feed changes without moving from his position at the carriage has recently been brought out by the Draper Machine Tool Company, Worcester, Mass. The speed changing device is contained in the gear box, mounted on the front of the apron at the left end, as shown in the illustration. Within the gear box is a cone of eight gears, mounted on the shaft which drives the carriage by rack and pinion for ordinary feeding or the lead screw when cutting threads. A gear traveling on the horizontal splined shaft is in mesh with an intermediate gear, which may be caused to engage with any one of the gears on the cone by a combined rocking and lateral movement of the projecting handle or sector. A pin on the sector arm may be inserted in one or another of a series of eight holes in the case of the gear box when the gears are in proper mesh for the corresponding screw pitch or feed.

At the head of the bed is a second gear box containing a supplementary change gear mechanism. This is controlled by the two levers seen in the engraving and gives five speed changes of such ratios that the eight changes corresponding to each one as afforded by the other gear box do not overlap. There are thus 40 distinct changes of feed or pitch provided in five groups of eight. The feeds, both longitudinal and transverse, may be reversed in the apron by means of a lever conveniently at hand to the operator. Interlocking features are provided which prevent more than one feed being operative at a time or the half nut being closed upon the lead screw unless both the cross and longitudinal feed are out of action. The quick change feed device is being attached to all the standard sizes of Draper lathes of from 18 to 42 inches.



A 28-INCH DRAPER LATHE EQUIPPED WITH THE QUICK FEED CHANGING DEVICE.

In the construction of a 750-mile telegraph and telephone line in the Belgian Congo district great difficulties were encountered in crossing several large streams. At Underhill the river was crossed by means of two steel pylons, 50 feet high and 2620 feet apart, placed respectively 237 and 206 feet above high water level. The crossing of the Kasai River was probably the most difficult, as it was necessary to keep the stream clear for steamer traffic. Advantage was taken of a rocky island in the river, and the crossing was made in two spans, one of 1472 feet and the other of 2198 feet, using three supporting pylons. Getting the four conductors into place gave trouble, but it was eventually accomplished by the aid of a steam tug.

The single phase system of electric traction is to be used on the Fort Wayne, Springfield & Decatur line, about 110 miles long, and on the Indianapolis & Connersville line, which is at present 53 miles long, but is to be extended to Hamilton, giving it a length of 93 miles. The generators for the latter, which were ordered before it was decided to use the new system, will develop electricity at 2300 volts. This will be stepped up to 16,500 volts for two-phase transmission to static transformer substations situated about 10 miles apart. There will be 10 stations, half to be connected to one phase and half on the other, and the current will be reduced to a pressure of 3300 volts in the trolley wire, and further reduced by transformers on the cars to a working pressure.

Water is so nearly incompressible that it is customary to consider it absolutely so. Professor Toit, however, informs us that were the water in the lower levels of the ocean relieved of the weight above it—*i. e.*, if the sea water were not compressed by its own weight—the level of the sea would be 116 feet higher than it is. Were this true some 2,000,000 square miles of what is now dry land (4 per cent. of the land surface of the globe, and in many respects the most valuable portion) would be submerged, and most of the greatest cities on the globe obliterated, including New York, London, Philadelphia, Paris, St. Petersburg, Constantinople, Canton and Tokyo. The present habitations of some 100,000,000 of the inhabitants of the globe would be engulfed.

The annual loss of the United States by typhoid fever was estimated by Dr. Vaughn, in a recent address before the Michigan Municipal League, at $90,000,000. He assumed the annual number of cases of typhoid fever at 500,000, and the death rate at 10 per cent. Estimating the value of each life at $1000, $50,000,000 is the annual loss by deaths. Assuming each patient who recovered to be ill for 40 days, thus losing time worth $40, and to be subjected to an average expenditure of $40 for doctoring, medicines and nursing, an additional total of $40,000,000 results. He says: "The people of the United States are paying an annual tribute of $90,000,000 because of their ignorance, through the existence of a disease which, if every man did his duty, would not exist at all."

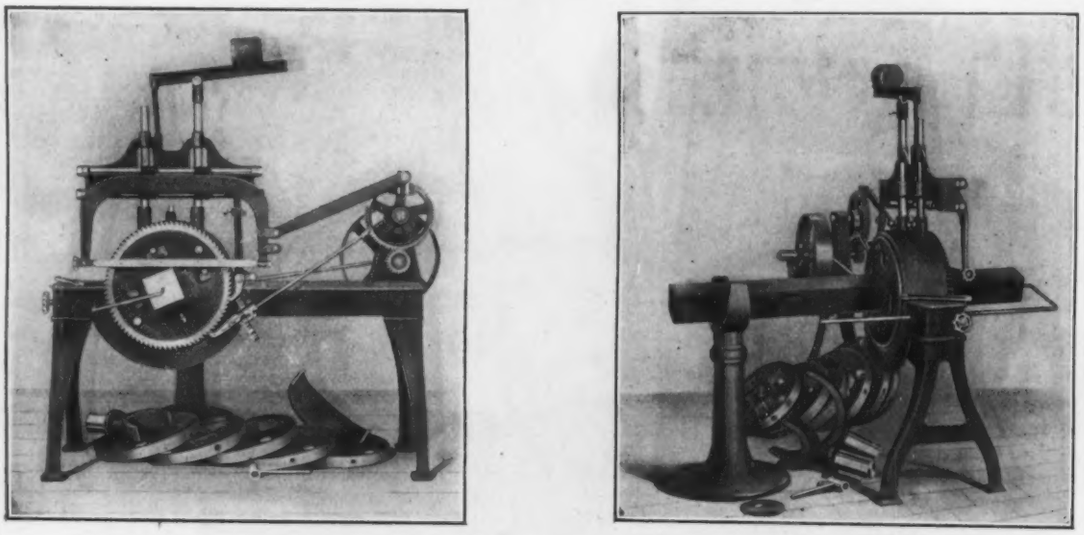
A New Power Hack Saw.

The West Haven Mfg. Company, West Haven, Conn., is now marketing a new cutting off machine which is a departure from the ordinary forms of power hack saw in that it revolves the stock while the saw is acting upon it. This feature is claimed to have advantages not obtained where the work remains in a fixed position, chief among which are that the work is performed faster, because the saw is always cutting against a narrow edge, and that the cut surface is smoother and truer.

The accompanying illustrations show side and end views of the machine. The stock is held in a simple four-jaw chuck, which is revolved in suitable bearings by a rachet feed mechanism. The latter is operated by an eccentric on the shaft with the crank gear wheel that reciprocates the saw. A feed of one or two notches may be used by regulating the time of engagement of the pawl, or the feed may be thrown out altogether when flat stock is being cut.

The action of the saw is similar to that on machines of its class. The throw of the crank on the gear wheel may be changed to alter the length of the stroke of the saw. The gear wheel is driven with a three to one reduction from the pulley shaft. The frame of the saw is supported by bored shoes sliding on horizontal rod guides on a bracket similarly supported and vertically movable on two upright rods. A lever carrying an adjustable weight partly counterbalances the weight of the saw and guiding bracket, leaving a sufficient downward pressure on the saw to give any required gravity feed. When a piece has been cut off the weight of the saw and bracket operates a trip, which throws out a positive clutch on the pulley shaft and stops the machine instantly.

The heavy end of the stock is supported by a cast iron crotch and pedestal, which may be placed at any convenient distance from the machine. The outer end of the piece being cut off is prevented from deflecting and wobbling when almost severed by an adjustable outboard center. This is also used to assist in setting the work. On the floor beside the machine in the illustrations may be seen other crotches and chuck faces, which are substituted for different sizes of work. Both the jaws and crotches are adjustable so that each accommodates a fair range of sizes.



SIDE AND END VIEWS OF THE WEST HAVEN MFG. COMPANY'S NEW POWER HACK SAW.

Cable advices from Cape Town, S. A., on the 22d ultimo, announced the departure from Cape Town of the first through train for Victoria Falls, over the Cape-to-Cairo Railroad, planned by the late Cecil Rhodes. Victoria Falls is on the Zambesi River, and is about one thousand miles north of Cape Town.

Shipbuilding in the United States.

WASHINGTON, D. C., July 5, 1904.—The statistics showing the number and aggregate tonnage of vessels of all kinds built and officially numbered in the United States during the fiscal year 1904, which closed on the 30th ult., as compared with the year 1903, have been compiled by the Commissioner of Navigation, through whose courtesy they are presented below. The exhibit is an interesting one, having a special significance in view of the investigation of conditions in the American merchant marine now being conducted by the Congressional Commission appointed in the closing days of the last session of Congress.

The total number of sail and steam vessels built and numbered during the year ended June 30, 1904, was 1092, aggregating 349,573 gross tons, as compared with 1215 vessels, aggregating 376,502 tons, for the year 1903, a decline of 123 vessels and 26,929 gross tons. To show the entire construction of the year there should be added to the total of sail and steam vessels in 1904 216 unrigged vessels, aggregating 51,844 tons, and to the total for 1903 320 vessels, aggregating 79,574 tons, giving a grand total for 1904 of 401,417 tons, as against 456,076 tons in 1903. The only important branch of the industry that did not show a decline in the fiscal year 1904 was that located on the great lakes, where the gross tonnage rose from 140,114, in 1903, to 141,302, in 1904. The vessels built on Western rivers increased in gross tonnage from 8952 to 9920 tons, but the Pacific Coast construction fell off from 40,081 to 22,196, and the Atlantic and Gulf Coast from 187,221 to 176,018. The following table shows the details of steel construction and total figures, including wooden vessels, for the fiscal years 1904 and 1903:

1904.

	Steel.					
	Sail.		Steam.		Total.	
	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic and Gulf	5	15,374	47	97,981	652	176,018
Porto Rico	..	....	..	....	7	129
Pacific	..	....	4	1,211	150	22,196
Hawaii	..	....	..	....	1	8
Great lakes	..	....	41	139,898	93	141,302
Western rivers	..	....	1	41	189	9,920
Totals	5	15,374	93	239,131	1,092	349,573

Unrigged, 1904, 216 vessels, aggregating 51,844 gross tons.

1903.

	Steel.					
	Sail.		Steam.		Total.	
	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic and Gulf	7	12,541	59	106,796	788	187,221
Porto Rico	..	....	..	....	10	112
Pacific	..	....	5	10,493	158	40,081
Hawaii	..	....	..	....	3	22
Great lakes	..	....	41	131,660	109	140,114
Western rivers	..	....	6	2,956	147	8,952
Totals	7	12,541	111	251,905	1,215	376,502

Unrigged, 1903, 320 vessels, aggregating 79,574 gross tons.

At the beginning of the fiscal year 1904 the returns to

the Bureau of Navigation showed that there were then under construction, or contracted for, but 12 steel ocean steamers of 1000 tons or upward, aggregating 108,910 gross tons. Five of these vessels were built for the foreign trade and seven for the coasting trade. During the year just ended all but three of these vessels, aggregating about 28,000 tons, have been completed, so that the yards now have on their books contracts representing less than 30,000 tons in addition to such orders as may have been placed within the past 12 months. What these new orders will aggregate the Bureau of Navigation is not yet advised, but the returns covering these figures will soon be available. Unofficial information received by the bureau indicates that the new construction contracted for is very small, and that during the coming year the yards equipped for steel construction will have very little to do aside from building for the navy and for a comparatively limited coastwise trade.

Only one large vessel is unfinished in the yards equipped for steel construction—namely, the "Dakota," a sister ship of the "Minnesota," now building at New London for the Great Northern Steamship Company. She is nearly ready, however, and will receive her official number in a few weeks. This will leave under construction nothing in excess of 5000 tons of vessels contracted for prior to the past fiscal year, and represents the cleaning up of all work ordered as the result of the temporary boom in shipbuilding stimulated by the attempt to secure subsidy legislation at the hands of Congress in 1900.

In his last annual report, the Commissioner of Navigation stated that when the vessels then building—and since completed—were finished, "the building of steel steamers on the seaboard, unless conditions change in the meantime, will be restricted to the demands of our costing trade, which are insufficient to give full employment to our shipyards, and unless they are supplemented by large orders for war ships by next summer (1904) our shipyards on the seaboard will probably be able to work to barely one-third of their capacity or less." The naval construction since authorized has not been unusually large, and a part of it has been assigned to Government shipyards. Under the circumstances, the shipbuilders of the seaboard will observe with deep interest the investigations and conclusions of the Congressional Merchant Marine Commission, which may mean so much to what is frequently described as a "moribund industry."

W. L. C.

Lake Ore News.

Mines Shipping Heavily.

DULUTH, July 4, 1904.—Two weeks ago this correspondence noted that vesselmen refused the 70-cent rate on ore from the head of Lake Superior that had been offered them, saying they would sooner tie up their vessels than accept it; but stated that they would doubtless come to it, as there was money at 70 cents a ton for a modern freighter, and that the owners of many of them would be very glad to accept a season freight at that rate. This week contracts at 70 cents from the head of the lake, 65 from Marquette, and 55 from Escanaba have been made, and these will undoubtedly be the going rates. Vessels are coming to docks very fast, and shipments are large, about up to the best average of former years, even from old ranges. Escanaba, for instance, is receiving over both the Northwestern and Milwaukee roads from Menominee range points from 1200 to 1300 carloads of ore daily, or, say, 40,000 tons. The Minnesota roads moved during June 1,353,000 tons, but this was for a short month, as traffic did not start until well along in the month. It was a decrease of 944,000 tons from the corresponding month last year.

There will be considerable activity on the Cascade range, south of Marquette, this season. Mining has been resumed at Richmond with a small force, that will be increased shortly. This is an open pit mine and can readily increase its output materially. Tracks are being laid to Volunteer mine, of the Oliver Iron Mining Company, and a large tonnage will be moved from the 200,000-ton stock pile that accumulated there when the mine was worked by the Donora Company. At Mesaba Friend mine, also belonging to the Oliver Company, operations are expected to resume in a short time. Much of its product will be crushed and the new crusher at Escanaba will handle it. Explorations that were begun southwest of Marquette last year, by the Cleveland Cliffs and other companies, have not been very successful, though some ore has been found.

Activity in Stripping and Exploring.

The cry at many mines is for more cars, and some properties are seriously incommoded. The Great Northern road has recently sent 500 50-ton steel ore cars to Montana, where they were wanted for copper, lime and coal, and this has made a shortage at Stevenson and other mines that ship via this road. Stevenson claims to be especially delayed. But last Sunday this mine was able to load and ship 17,000 tons of ore, which is the record for any mine, so far as I can recollect. This was done with three steam shovels in the ore and a double shift. The total number of cars loaded was 430. At this mine three steam shovels are now at work in stripping along the north side of the pit, and three drills are exploring the south side, where additional ore is being found. The mine will soon have an open deposit of about 500 feet wide and 4000 feet long, from which an average depth of surface of not far from 40 feet will have been taken, or about 2,700,000 cubic yards of material. This work was begun in the winter of 1900-01, and has employed from two to three large steam shovels ever since, the work having been done by the Drake & Stratton Company.

Two important stripping contracts are soon to be let on the Mesaba range, one for the Oliver Iron Mining Company and one for an independent company. Yates mine will be temporarily closed on account of a strike of trammers, who were getting $1.75 a day. The mine has no railway connection yet and cannot ship ore for a month or two at best. Jordan, Leetonia, Cyprus and La Rue mines, near Hibbing, have resumed.

The Great Northern road is building tracks to Monroe mine, whose product it will handle. This mine is a property of the United States Steel Corporation, but was bought under a contract that gave all its ore haul to the Great Northern. It will be one of the road's large tonnage assets, for it will be an important shipper another year.

In Mansfield Township, Menominee range, the Harding exploration is looking well. It shows a large amount of lean Bessemer ore and some of high grade, the latter running up to 60 per cent. iron and down to 0.025 per cent. phosphorus. At 40 feet from surface the ledge is 13 feet wide and firm and solid. Explorations are under way there with as large a force as can well be worked.

Miscellaneous Notes.

R. H. Flaherty, who has been exploring on the Canadian side of the international line north from Minnesota for several years, most of the time for the United States Steel Corporation, has found what he claims is a very valuable iron ore property a short distance east of Port Arthur, on Thunder Bay. It is said by those that have seen it to be highly promising, but developments in that region have been so disappointing that most iron ore men will await further operations before becoming enthused over anything there, however promising its indications are.

Helen mine, at Michipicoten, of the Lake Superior Company, has commenced shipment for the year. Its product has been sold to American furnaces.

The new works of the Michigan Smelting Company, at Houghton, have started up, but are not running full. These works are owned by the various mines of the Stanton and South Range groups, and are expected to show a cost of smelting lake mineral under anything ever done.

Calumet & Hecla continues to explore on the Kearsarge lode, and has two shafts now going down to test the lode at different points.

D. E. W.

The Lake Superior Mining Institute will hold its tenth annual meeting at Ironwood, Mich., on the Gogebic range, August 16, 17 and 18. Following the meeting it is planned to take an excursion trip to Milwaukee and Chi-

cago, where a number of days will be given to an inspection of the leading mining machinery establishments in those cities.

The Edwards Conveyor.

A new type of conveyor, designed for the transportation of grain in mills, has recently been patented by James M. Edwards of New York City. It is a spiral or helical type of conveyor, but differs from the ordinary form in which a helix rotates within a stationary exterior casing. The helix in this conveyor is part of the exterior casing, being formed around the interior periphery of the cylinder, and the entire cylinder is rotated, causing the contained material to work in one direction or the other, according to the direction of rotation. This new form of spiral conveyor has an advantage not found in the older form, particularly in the transportation of liquids and finely powdered material, in that there is no slip, the contents being positively passed along independent of the speed. Another advantage is that the conveyed material is not broken or ground by the action of the conveyor.

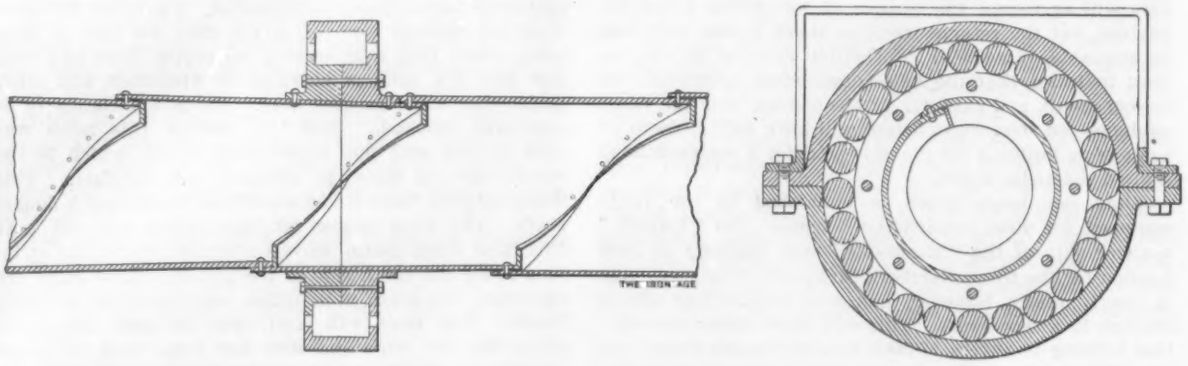


Fig. 1.—Longitudinal and Transverse Cross Sections of the Edwards Spiral Conveyor.

In the accompanying illustrations Fig. 1 shows a longitudinal section of the conveyor and a transverse section through one of the roller bearing hangers and couplings. The conveyor cylinder is in the form of a helically wound band, and the helix is secured to the shell at the lap of the seams. The inventor recommends two ways for attaching the helix. One scheme is to form it separately of a strip creased at right angles, one leg of which is riveted between the edges of the band when they are lapped. The other scheme is to bend the flange on one edge of the spiral band which forms the cylinder casing. When the band is coiled into cylindrical form the flange projects inwardly, forming the spiral vane. The adjacent edge of the band overlaps that provided with the flange, and the seams are secured in the usual manner by rivets.

The conveyors may be of any length and are made up in interchangeable sections connected by couplings, each section being a complete machine. The ends of the sections are provided with collars having peripheral flanges formed with recesses. The space between the oppositely disposed flanges forms a channel to accommodate roller bearings, the spindles of which fit within the recesses in the flanges. The hanger or bracket is in two semicircular parts, secured together by bolts. The inner periphery of the bracket is formed similarly to the collars, having flanges and an intermediate channel to accommodate the rollers. If desired balls may be substituted for the rollers by making the channel circular and dispensing with the recesses. If the sections are long hangers are placed also between the couplings, depending, of course, upon the weight of the material which is handled. By nature of its construction the cylinder is not easily deflected. It is revolved by mounting anywhere upon its circumference one or more band wheels or sprockets for driving by belt or chain.

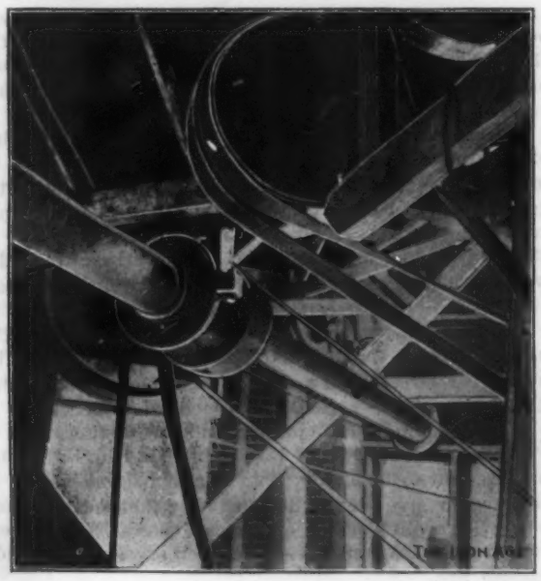


Fig. 2.—Showing Method of Driving the Conveyor.

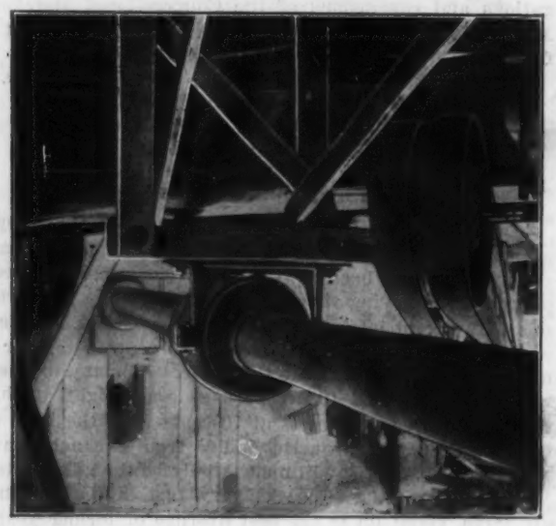


Fig. 3.—Showing Method of Supporting the Conveyor.

Various means may be employed for introducing the material into the conveyor and receiving it as discharged, the simplest form consisting of chutes. The conveyor is adapted to discharge at one or several points. It can be made in a form to sift dust from the contents or to

afford a selective distribution where the material consists of varying sized pieces by perforating the casing with holes of decreasing sizes at suitable points along its length.

The accompanying half-tones, Figs. 2 and 3, are views of an experimental model of the conveyor and show the arrangement of the drive and the manner of suspending.

Large conveyors of this form may be made of cast iron. The sections would then be made in halves, with longitudinal flanges, and the worms or spiral vanes cast in them.

The Iron Industry in Australia.

(*From our own correspondent.*)

The question of locally manufacturing iron in Australia is a pretty frequently recurring one. This is due principally to the pertinacity of Wm. Sandford, Australia's one ironmaster. For 20 years past he has worked and fought for the establishment of the industry, spending the best years of his life and sinking large sums of money in his tireless efforts to achieve his object.

He has at last succeeded in inducing the New South Wales State Government to call for tenders, to close June 20, 1904, for 50,000 tons of manufactured iron or steel, local manufacture to be specified. Ten to 15 per cent. duties on iron work come into existence, by provision of the Federal Customs act, when the iron industry is established. With the fulfillment of the Government's promise to call for tenders as above there seems little doubt that Mr. Sandford will secure the contract, and after that he will doubtless endeavor to hold the Australian market against oversea competition by the aid of the 10 to 15 per cent. duties.

Sandford's original proposal to the New South Wales Government was that the Government should give him the 50,000-ton contract (delivery over five years) at the past five years' average price of about £6 a ton. He would be prepared to hand over the works to the State at any time at a valuation, and if the Federal Government decided to pay a bonus for iron manufacture he would hand over the whole of it to the State. Wages for manual labor were to be the same "as are held to be the rates pertaining in the Government service for the equivalent of such labor employed in the State." Such an offer, coming from a man who has spent his life in the iron industry of New South Wales and who for many years paid £1000 a week in wages, was bound to carry weight.

Scrap iron has been the principal raw material consumed at Sandford's Lithgow works, but this is getting scarce owing to the increase in the use of steel instead of iron. As high a price as £4 16s. 6d. per ton for old rails has been paid by Mr. Sandford to the New South Wales Railway Commissioners to provide his raw material.

Local ores will, of course, be used in the contract shortly to be placed. The percentage of local ore has not been fixed, although it is understood to be something like 75 per cent. Sandford's plant at Lithgow is at present capable of consuming 12,000 to 15,000 tons of pig iron each year.

William Jamieson, giving evidence some time ago before the Iron Bonus Committee, estimated Australia's annual requirements in pig iron, in order to produce the required quantity of the finished product, at 450,000 tons. This, if anything, is over the mark. But if it were only half this amount then, if the official estimate of £2 7s. 7d. per ton for cost of producing pig iron at Lithgow is not grievously under the mark, there should not be much difficulty, if the quality is right, in starting competition with the imported article, say Middlesbrough at 70 shillings and American at 85 to 95 shillings, according to the brand, Melbourne prices at date.

The total value of exclusively iron goods imported into Australia in 1902 was about £4,670,000, and this particular year was considerably below the average. The working up of the finished iron represented in these figures should be sufficient to establish a live industry. If Mr. Sandford is successful with his first contract, then may we count hopefully on an additional source of prosperity for Australia. But the proof of the pudding is in the eating, and it is difficult to realize that cost of production locally (including high wages), added to the heavy Australian railway and coastal freights, can cut under American and European first costs plus comparatively low freights.

And Mr. Sandford's first contract would be partly absorbed in establishing his works and plant and getting into order generally.

June Fluctuations in Iron Stocks.

The following table shows the fluctuations in quotations of the stocks of iron and steel companies in the month of June, with the dates on which the highest and lowest prices on each stock were realized:

		Lowest.	Date. June	Highest.	Date. June
.....	Allis-Chalmers, com....	8	6	8½	25
.....	Allis-Chalmers, pref....	41⅛	21	42½	25
$41,233,300	Amer. Can, com.....	3¾	2	4⅝	18
41,233,300	Amer. Can, pref.....	35¼	3	39½	18
29,000,000	Am. Car & F'dry, com..	16⅛	30	17½	24
29,000,000	Am. Car & F'dry, pref..	70	1	71¾	21
24,100,000	Am. Locomotive, com..	18½	28	19⅝	29
25,000,000	Am. Locomotive, pref..	82⅛	13	83¾	30
.....	Am. Steel F'dries, com..	4⅝	24	5	28
.....	Am. Steel F'dries, pref..	28	27	28	27
45,000,000	Cambria Steel.....	18⅛	1	19¾	25
17,000,000	Colorado Fuel & Iron..	28	9	31	22
25,000,000	Crucible Steel, com....	4	30	5	24
25,000,000	Crucible Steel, pref....	33	20	37	27
.....	Dominion Iron & Steel..	7¼	12	9¼	7
4,449,800	Otis Elevator, com.....	29¼	1	29¼	1
6,350,000	Otis Elevator, pref.....	85¼	3	86	6
16,500,000	Penna., new, pref., Phila.	74	28	74	28
12,500,000	Pressed Steel, com....	25½	3	27⅝	23
12,500,000	Pressed Steel, pref....	68	8	71⅛	27
10,000,000	Railway Spring, com...	16⅝	30	17½	6
10,000,000	Railway Spring, pref...	73	11	76⅛	2
27,191,000	Rep. Iron & Steel, com.	6½	21	6½	24
20,306,900	Rep. Iron & Steel, pref.	37½	1	42⅛	16
7,500,000	Sloss-Shef. S. & I., com.	34½	30	36⅛	12
6,700,000	Sloss-Shef. S. & I., pref.	....	..	....	..
20,000,000	Tennessee Coal & Iron..	32⅝	6	35⅝	27
510,361,300	U. S. Steel Co., com....	8⅝	1	10	27
508,511,200	U. S. Steel Co., pref....	52⅝	7	56½	23
.....	U. S. Steel Co., new 5s.	73	2	75⅞	30

Experiments with an apparatus which forces into the breech of a gun a stream of compressed air and steam, thus syringing out the gun before another charge is inserted, are being conducted at the Washington Navy Yard under the instructions of the United States Bureau of Ordnance. This is only one of many devices which have been suggested to prevent flare-backs. It is stated that on the "Illinois" one has been installed by which the forced draft used for the Whitehead torpedo tubes is turned into the breech of the guns at a pressure of about 100 pounds per square inch. It is believed that this is the most satisfactory scheme yet found.

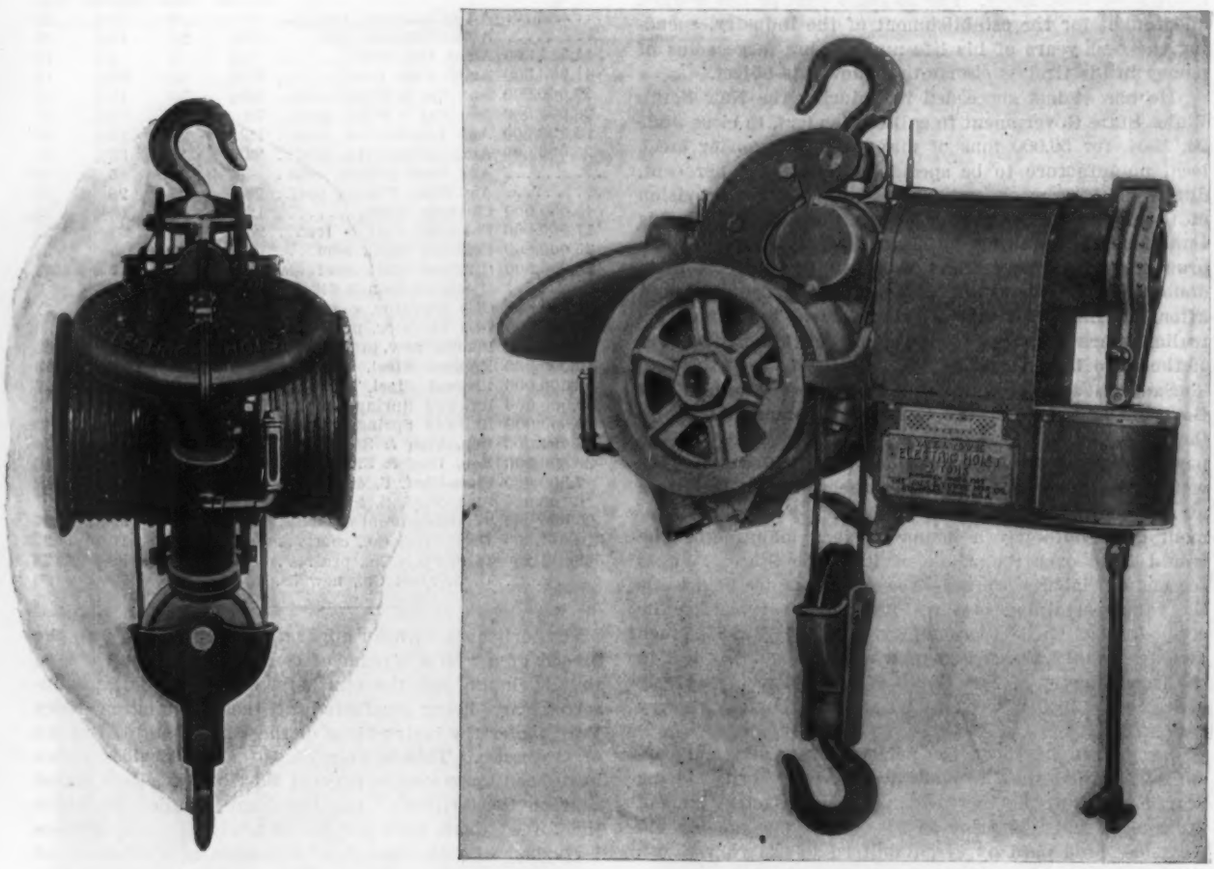
The technical colleges of Germany, according to the latest reports, are attended by 12,384 Germans and 2242 foreigners, some 43 per cent. of the latter number being Russians. The total percentage of foreign students is 15. Some of the German papers are protesting against the admission of foreigners to German technical schools, alleging that it will injure the manufacturing and export trade of the German empire. Fear of competition from the United States appears to be the especial cause of this agitation.

A new device for driving a dynamo igniter on a motor car was exhibited at the Paris Automobile Show. A small turbine placed within the muffler is operated by the exhaust gases and drives the dynamo. From experiments made with a 6 horse-power car it is said that the exhaust was sufficient to run the turbine at 5000 revolutions per minute when idle, at 3000 revolutions per minute driving a dynamo at 10 volts and 5 amperes, and at 2000 revolutions per minute when driving the dynamo at 20 volts and 5 amperes. The weight of the complete apparatus is but 26 pounds.

The Yale & Towne Electric Hoist

A simple, convenient and durable power hoist has recently been developed by the Yale & Towne Mfg. Company, Stamford, Conn. The feature of durability is one which is emphasized, as it has been made to withstand rough usage and give satisfactory service in the hands of inexperienced workmen. The working parts are inclosed, permitting it to be used out of doors or places where moisture and dust are present. It may be transported from place to place about as easily as an ordinary chain block, and may be used in any part of the works or yards where electric current is available. The largest field of application for the hoist will be the handling of work too small to require a traveling crane and too large to be cared for by hand hoists. It is sufficiently compact to be hung and operated in a very small space, and the working parts are inclosed in an oil tight iron casing, which excludes dust and water and provides for thorough lubrication. The thrust on the worm shaft is taken by thrust collars, which are part of the shaft and are accurately fitted to a bronze thrust bearing, the whole being immersed in oil. A glass gauge, seen on the side of the casing, shows the hight of the oil in the chamber.

The motor is placed above the oil submerged parts of the hoist out of ordinary reach of damage from that source. In addition, the motor shaft bearings are constructed so as to prevent oil from working its way into the motor. The improved oiling devices preclude heating from overloading or injury from the high temperature likely to exist near the ceiling. The load is sustained by a wire hoisting rope of toughest steel, wound on spiral grooved drums which are keyed to the worm wheel shaft. At the hoisting hook the rope passes around an equalizing sheave, thereby balancing the strains. All parts under



END AND SIDE ELEVATIONS OF THE YALE & TOWNE NEW ELECTRIC HOIST.

addition of one of these hoists to a hand crane will greatly enhance the usefulness of the latter. Throughout the hoist is constructed of carefully selected material, and all parts are made to gauge to be readily interchangeable.

A complete hoist may be seen in side and end elevations in the accompanying illustrations. At the right of the side view may be seen the controller handle, just above it the controller and above the controller a solenoid band brake. The band brake acts on a pulley on one end of the armature spindle, the motor being inclosed in a case to the left. The opposite end of the armature shaft carries a small bevel pinion which drives a larger bevel gear shown at the end seen in the other illustration. On the shaft with the bevel gear is a worm which meshes with a worm wheel on the drum shaft. The worm and worm wheel are of special construction, and have a ratio which prevents the load from running down with dangerous acceleration independently of the brake. The worm wheel is of tough bronze and is mounted on a 30 carbon steel shaft. The worm is made of 35 to 40 carbon steel and is cut to a test fixture. The tension or subjected to transverse strain are of forged steel or wrought iron. The hoist always balances properly on its upper hook, whether loaded or empty, and pulls in a true vertical line throughout the lift. The suspending hook being swiveled allows the hoist to be turned at any angle.

The hoist is operated from the floor and is regularly equipped with a telescoping controller rod, enabling the workman to control it from a point in full view of his work, without depending on signals to a crane operator. Pendent cords or chains may be furnished if preferred, but the rod controlling device gives more precise control of the load and is so made that it cannot start the hoist accidentally by coming in contact with any obstruction when transversing on a crane or runway.

These hoists are made in five standard sizes to meet various requirements. In design and construction it may safely be considered that these hoists attain the same high standard of excellence which characterizes the chain blocks which have long been manufactured by the Yale & Towne Company.

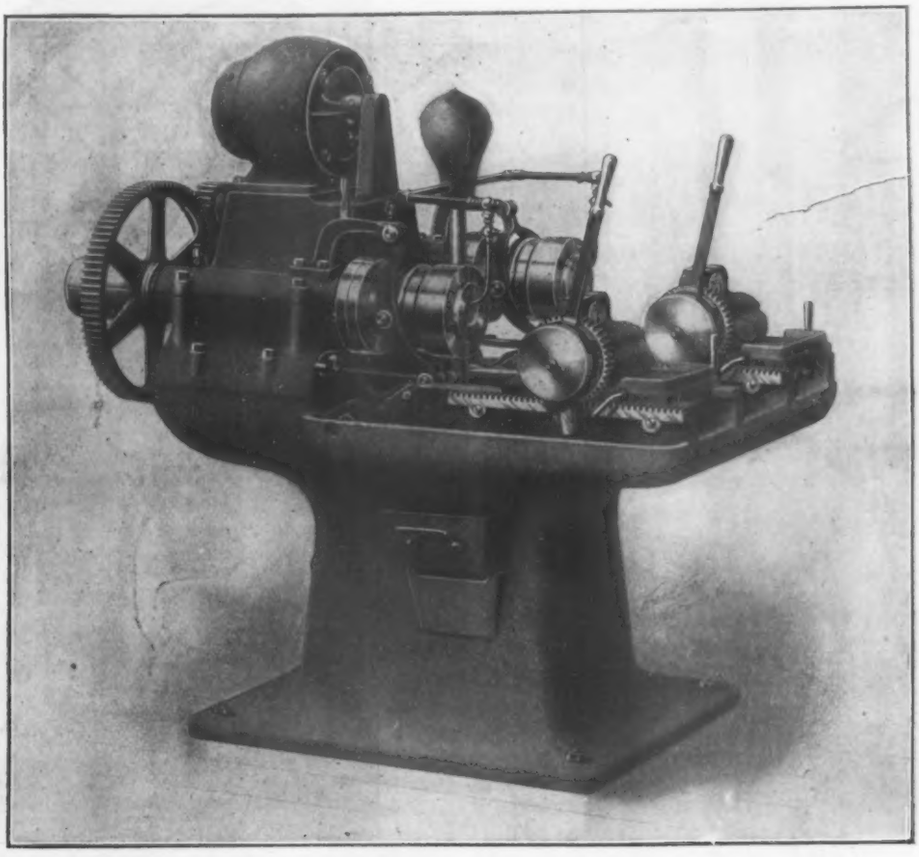
The New National Motor Driven Double Bolt Cutter.

Simplicity of construction and ease of operation are features of the new motor driven double bolt cutter shown in the accompanying illustration. The builder of the machine, the National Machinery Company, Tiffin, Ohio, has one in operation in the exhibit of the Northern Electrical Mfg. Company in space 14 of the Palace of Electricity, World's Fair, St. Louis. It is so designed as to make it adaptable to the application of any standard type of motor, enabling the machine to be operated upon either single or multiple voltage systems of current supply. With this end in view, the gearing has been arranged to give a great range in speed, although it is neither intricate nor bulky. A speed variation of 40 per cent. is all that is required of the motor, so that a constant potential source of current supply may be efficiently used and regulation afforded by varying the field or armature current. The motor is mounted on the housing which incloses the change gears and drives them through a silent running chain. All running parts are protected from dirt and chips, and special care has been given to the oiling system to insure effective lubrication.

In the gears three changes of speed are secured, the highest being obtained with the change gears out of mesh and the motor driving direct. To effect the various speed changes, a shifting lever provided with a latch pin is used, which may be seen at the side of the housing. A controller having any number of steps may be used, but ordinarily three are sufficient, as these, in connection with the gears, make nine speeds available, which may be proportioned to give regular increments. These gradations, correctly proportioned, give proper cutting speeds for all standard sizes of bolts from ⅜ to 1½ inches in diameter.

There are many novel features in the National double bolt cutter which make it especially suitable for driving by motor. The ease of operation of the cutting heads and the simplicity of the patented single lever vise and carriage movement enable the machine to run at a high rate of speed, insuring maximum output. A system of forced feed lubrication is provided, the oil being drained from the chip and oil pans by a pump and passed through an air chamber, from which a constant stream of oil, under considerable pressure, is delivered to the dies, with the result that long life is insured to the latter, even when running at high speeds. The gears and racks used in the construction of the machine are cut from solid stock. The carriages are provided with adjustable gibs to take up wear, and the vise jaws have removable grips made from hardened steel. Centering devices are incorporated in the vise jaws, causing them to hold the bolts in properly centered relation with the dies.

The die heads are of the National open die type, which are automatically opened and closed by the movement of the carriages. The positive lock on these heads holds the dies rigidly in position when cutting threads, insuring uniformity in the product, preventing the threads from being cut tapering, and entirely doing away with wear and friction on the sliding surfaces. For special thread cutting, this machine can be furnished with positive feed and lead screw attachment.



THE NEW NATIONAL DOUBLE BOLT CUTTER EQUIPPED WITH CHAIN DRIVE FROM A SELF CONTAINED NORTHERN ELECTRIC MOTOR.

The same machine may be had in sizes and capacities for cutting bolts from ¾ to 2½ inches in diameter. The National Machinery Company also builds a full line of single, double and triple head machines, provided with either motor or belt drive.

One of the largest boat orders ever placed was recently secured by the Electric Launch Company, Bayonne, N. J., on competitive bids. The United States Navy Department has need of 120 electric boats for the use of the artillery corps in the operation of planting submarine mines for harbor defense. This fleet will be capable of handling 500 mines, and will also be used as tenders to the new submarines. If lined up, end for end, the total length would be about 2500 feet, or nearly ½ mile. The contract date of completion is June 30, 1905.

The Manhattan Bridge.

A design has finally been agreed upon which, if approved by the Municipal Art Commission, will be adopted for construction of the Manhattan Bridge or, as it is officially designated, No. 3. This structure is to span the East River at a point between the Brooklyn Bridge and the recently completed Williamsburg or, as it has more commonly been termed, New East River Bridge. It is the bridge over which a good deal of controversy was indulged in when it was proposed by Gustav Lindenthal, Bridge Commissioner under the Low administration, to employ nickel steel eye bar chain cables instead of the familiar wire cables, and spandrel trussing connected directly with the chain cables instead of the suspended stiffening truss.

It will be noted by reference to the accompanying engravings that the eye bar cable construction has been defeated and that the wire cables are to be employed. The new bridge is to be of the three-span type, the river span being 1470 feet and each of the land spans 725 feet long. It will be 120 feet wide and is designed to have more than double the capacity of the Brooklyn Bridge. There will be four elevated railway tracks, four tracks for trolley cars, one 35-foot roadway and two sidewalks 10½ feet wide. The steel towers will rise 320 feet above water level. The towers will be built up of structural steel, having their bases and the saddles for the cables of cast steel. The anchorages are of new design, inasmuch as the cables are drawn over large steel saddles mounted on top of masonry buttresses which take the reaction. This is clearly shown in Fig. 3. The masonry foundations for the towers are about 65 x 132 feet. The entrance to the bridge on the New York side will be at about Canal street and the Bowery. Across the river it will come to grade near Nassau street and will continue to Flatbush avenue, which is to be extended westward from Fulton street to meet it.

The design is that of R. S. Buck, who was Chief Engineer of the Bridge Department under Commissioner Shea. Mr. Buck is now working on the details of the anchorage plans, which will be completed within four to six weeks. The contracts for the anchorages will be the first to be let—other contracts following in order as rapidly as the detail plans and specifications are completed. The architectural and ornamental embellishments were designed by Carrere & Hastings, New York, who in their report say:

If one were to cross the two existing bridges, the Brooklyn Bridge No. 1 and Williamsburgh Bridge No. 2, without thought of architectural study or detail, one's attention would be strongly drawn to the impressiveness and charm of stone and iron combined in the construction as seen above the roadbed on the Brooklyn Bridge No. 1 and which is wanting in the other.

From the engineering and practical point of view it has been generally conceded to be a mistake to build the main towers of such a bridge of stone, because the openings in the towers must be so diminished in size in order to be made of masonry as to materially affect the circulation of such a thoroughfare. It is therefore impossible to obtain any effect of masonry above the roadbed by building the towers of stone. We have accordingly suggested that there should be some expression in stone above the roadbed of the immense amount of masonry necessary under the roadbed for the construction of the anchorage. On the one hand this affords us an opportunity to bring stone construction in contact with the great amount of necessary iron construction, and on the other hand makes it evident to all crossing the bridge

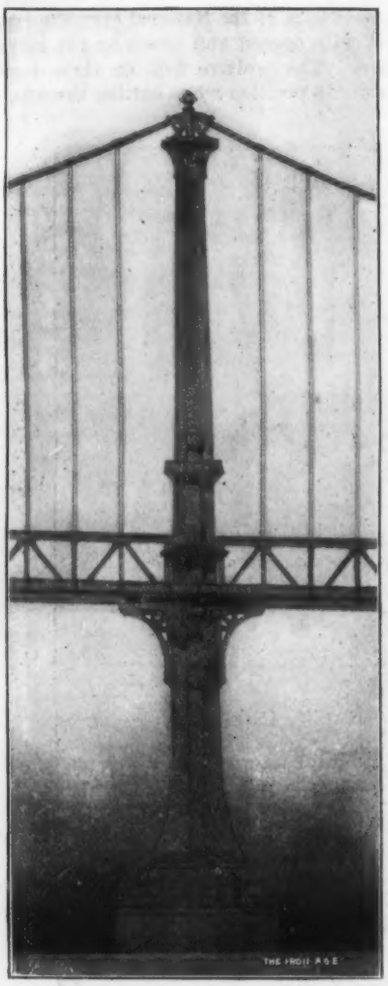


Fig. 1.—Side Elevation of One of the Steel Towers of the Manhattan Bridge.

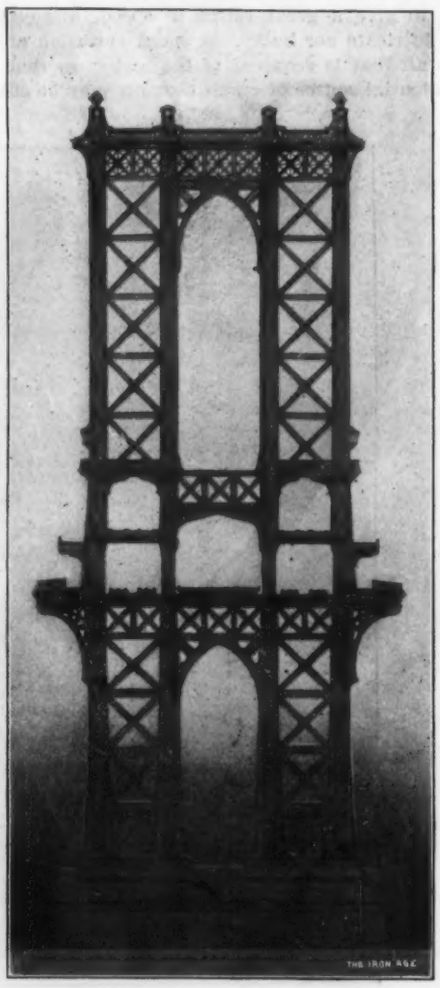


Fig. 2.—Front Elevation of One of the Steel Towers of the Manhattan Bridge.

that they are on the anchorage, by some other method than by the mere change in the pavement material.

When one thinks of such a bridge in execution rather than in mere drawings, one cannot help feeling how inadequate are any mere matters of architectural detail work in iron lost in such a forest of structural steel work. The first, and what seems to us, therefore, the most important, feature in design is this stone work over the anchorage. This anchorage has an area of about 225 feet in length by 175 feet in width, and it has seemed to us that nothing could be more impressive than this court treatment, 120 feet above the water level. This treatment of the anchorage has made it possible to obtain an extra width at this part of the thoroughfare and has given places off from the general circulation where people can rest under cover on their way over the bridge, and obtain a view of the distant city and the surrounding waters.

We have endeavored to utilize the necessary masonry supports for the anchorage saddles to make them a part of the architectural scheme connecting the colonnade; one of the pavilions of the colonnade on either side of the anchorage is devoted to staircases, which connect with the interior of the anchorage and which will be finally connected with the street.

The architecture of this anchorage as seen from the street is also one of the most interesting portions of the bridge to be treated, and it has been our endeavor to avoid any unnecessary ornament, using only structural decoration and obtaining our effects by the large masses of material and stone jointing. We have endeavored to concentrate all of our enrichment upon that portion of the anchorage which comes under the colonnade and which expresses an interior void.

That portion of the anchorage which does the principal amount of the real work we have endeavored to keep simple and calm in contrast with the other. One of the most interesting features in the study of the anchorage has been the study of the massive buttresses on the water side, which carry the saddles to receive the cables and which buttress the immense thrust given those cables.

The perspective which we have submitted explains more fully than we can in writing what we mean by the relation of a mass of stone to the iron work over the road bed. This also shows the court, which, we believe, will be the most impressive feature of the bridge and will be money better spent than by spreading detail over so large a construction. As to the towers, we were very much impressed by the beauty of the lines given us by the engineers and which are the expression of an economic and mathematical construction. These lines in themselves are most beautiful and need but little decoration, and such decoration should, in our opinion, be concentrated and accentuate in every way the lines of the construction. Here we have another opportunity afforded us to obtain covered resting places on the way over the bridge, and at the same time, by making an iron and copper hood, to enrich and obtain a shadow at this point. Another and most important feature from the architectural point of view is the crowning of these steel towers. It is our opinion that any mere decorative treatment on top of these towers and above the cables, coming against an open sky and on so large a construction, would be, at best, inadequate and undignified. It has, therefore, been our endeavor to simply crown them with a cornice effect and to keep this crowning under the lines of the cable, like the cap of a column under an architrave. This cornice we have tried to make iron in character, with a large projection, and concentrating all decorative features in a gallery effect the whole width of the tower.

The main lines of the cables and suspended trusses as given to us by the engineers are, in our opinion, the most beautiful we have ever seen in any bridge, expressing as they do the rational and simple solution of the problem from the engineering point of view.

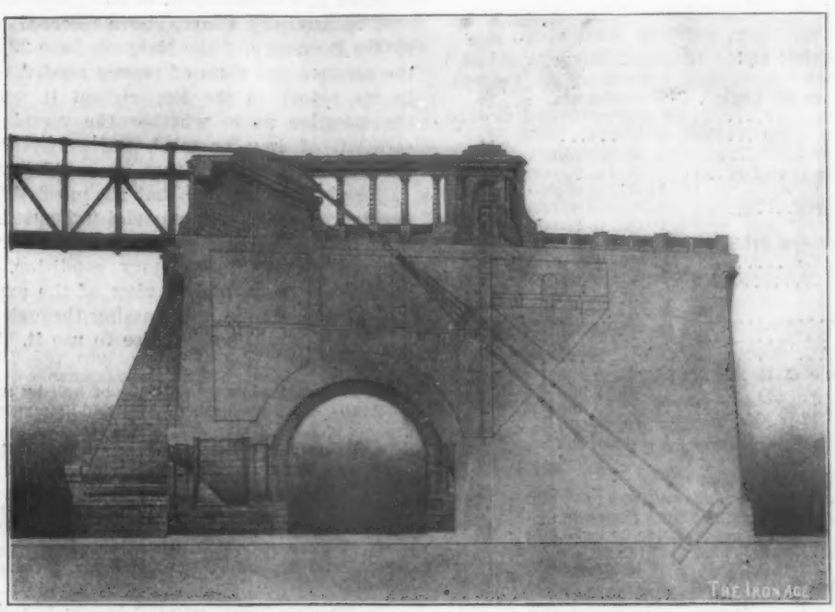


Fig. 3.—Longitudinal Section of One of the Anchorages of the Manhattan Bridge, Showing Details of the New Form of Anchorage.

A paper on the use of pulverized coal for the generation of steam was read at a recent meeting in Chicago of the Western Society of Engineers by John M. Sweeney. According to the results of comparative trials cited by him, each pound of the pulverized coal gave an equivalent evaporation from and at 212 degrees F. of 9.4 pounds of water, while ordinary fuel of the same grade, hand fired, gave only 7.5 pounds. On the basis of the combustible the equivalent evaporation in the two cases was 10.47 and 8.4 pounds, respectively.

The Canadian Government is arranging to erect a steel grain elevator at Port Colborne, the Lake Erie entrance to the Welland Canal, to be owned and operated by the Government as a part of the canal system. Mr. Jamieson, the well-known elevator engineer, of Montreal, has been requested by the Minister of Railways and Canals to prepare plans for a steel bin structure of 2,000,000 bushels capacity, costing, approximately, $1,250,000, to be ready for business in the summer or fall of 1905.

The Early Use of 60,000-Pound Steel.*

BY SAMUEL TOBIAS WAGNER.

The growing favor with which the proposition to use a single grade of steel for all ordinary structures, and that grade having an average ultimate tensile strength of 60,000 pounds per square inch, is the excuse for the presentation of this paper, which is not intended to present any new facts, but simply in a brief manner, to attempt to follow the earliest uses of structural steel in this country, and especially to review the attempts to produce a 60,000-pound steel over 20 years ago.

C. C. Schneider presented to this society a review of the history of the use of steel, as applied to bridges in this country, at the meeting at Atlantic City in 1902, and the writer takes the liberty of using it, at the same time inserting a number of additional structures which were erected between 1878 and 1884. The additions consist of the following bridges: Glasgow, Chicago River, Smithfield street, Pittsburgh; Blair, Willamette, Point Pleasant and Henderson.

Year of completion, river and description.	Ultimate strength. Pounds.	Minimum elongation. Per cent.
1874 Mississippi, arches St. Louis..	100,000 min.	18
1878 Glasgow Bridge.....	80,000 to 100,000	15 to 10
1878 Chicago, Chicago River.....	.....	..
1880 Missouri, Plattsmouth.....	80,000 min.	12
1881 Monongahela, Smithfield St..	C. 80,000 to 90,000	12
	T. 70,000 to 80,000	18
1882 Missouri, Bismarck.....	C. 80,000 to 90,000	12
	T. 70,000 to 80,000	18
1882 East River, Brooklyn Bridge..	70,000	..
1883 Niagara, Cantilever.....	80,000	15
1883 Missouri, Blair.....	C. 80,000	15
	T. 70,000	18
1883 Williamette	.....	..
1883 Ohio, Point Pleasant.....	.....	..
1884 Ohio, Henderson.....	.....	..
1884 Susquehanna, B. & O. R. R....	C. 80,000	15
	T. 70,000	18
1885 Arkansas, Van Buren.....	C. 80,000	15
	T. 70,000	18
1885 Ohio, Ken. and Ind., cantilever	C. 80,000	15
	T. 70,000	18
1886 Harlem, Washington Arch, New York	62,000 to 70,000	18
1887 Missouri, Sibley, A., T. & S. F.	C. 75,000 to 85,000	18
	T. 60,000 to 70,000	23
1888 Missouri, Omaha.....	C. 80,000	15
	T. 70,000	18
1888 Mississippi, Cairo.....	67,000 to 75,000	20
1888 Ohio, Cincinnati, C. & O....	C. 64,000 to 72,000	19 to 17
	T. 58,500 to 66,500	20 to 18
1890 Firth of Forth, cantilever...	C. 76,000 to 83,000	17
	T. 67,000 to 74,000	20
1890 Colorado, Red Rock, cantilever	C. 64,000 to 72,000	19 to 17
	T. 58,500 to 66,500	20 to 18
1890 Mississippi, Merchants Bridge, St. Louis.....	67,000 to 75,000	20
1891 Ohio, Cincinnati, cantilever..	62,000 to 70,000	22
1892 Mississippi, Memphis, cant..	Main truss 69,000 to 78,500	18
	Rest 64,000 to 72,500	22
1893 Mississippi, Bellefontaine.....	62,000 to 70,000	22
1893 Delaware, P. R. R., Philadel.	Main truss 62,000 to 70,000	22
	Rest 50,000 to 60,000	26
1897 Niagara, double deck bridge..	60,000 to 68,000	20
1898 Niagara, highway arch.....	60,000 to 68,000	20

C. represents compression. T. represents tension.

Where datum is not supplied it has not been possible to obtain it. Steel for the bridges at Point Pleasant and Henderson was made by the Cambria Iron Company, whose records were lost in the flood of 1888.

The best obtainable datum shows that up to about 1886 it was customary to use a steel of much higher tensile strength than that which can now be considered good practice for ordinary structures. This seems to have naturally occurred on account of the desire of engineers to use a high unit stress for a high ultimate, irrespective of the danger of nonuniformity and the liability to injury of such material under mill and shop treatment. Now that we can look back to it, it seems natural that such should have been the case. It would seem that as early as 1884 very little was known of what we now call a 60,000-pound steel.

The writer has been interested in noting of late that his first practical experience with steel was with what was then called "soft or mild steel," and that it was probably the beginning of the use of 60,000-pound steel in the United States for structural purposes.

* Read before the American Society for Testing Materials, Atlantic City, N. J., June, 1904.

Mild Steel Adopted for the Navy in 1883.

In 1883, while in the employ of the Phœnix Iron Company of Philadelphia, he was assigned to represent that company in the tests which were made by the United States Navy upon steel shapes for the dispatch boat "Dolphin" and the cruisers "Boston," "Atlanta" and "Chicago," constructed under acts of Congress of August 5, 1882, and March 3, 1883, and built under contract with John Roach of the Delaware Iron Shipbuilding & Engine Works, Chester, Pa.

The history of the reason why mild steel was used for these vessels is interesting, and the specifications and details in obtaining it form the principal excuse for the presentation of this data drawn from the private notes of the writer and from a "Report of the Naval Advisory Board on the Mild Steel Used in the Construction of the Hulls, Boilers and Machinery of the 'Dolphin,' 'Atlanta,' 'Boston' and 'Chicago,' Prepared from the Records of the Board by Assistant Naval Constructor R. Gatewood, U. S. N."

The Advisory Board, above referred to, was convened by the Secretary of the Navy on June 29, 1881, to suggest the number and class of vessels needed by the navy, and in its report to the Department it was divided upon the question as to whether the vessels should be constructed of iron or steel, the majority favoring steel. Abstracts from the report are as follows:

The board admitted that the most difficult question to decide was the proper material to be used. The contenion was made that the construction of iron vessels had reached a very satisfactory condition, and that steel would cost more, and in view of the experimental stage which shipbuilding was passing through at that time in Europe it would not be wise to use it. The reasons for its use were:

1. Increased saving in weight of hull by reduced dimensions.
2. Increased strength of hull and immunity from danger in grounding.
3. Rapidly increasing success with steel in Europe.
4. The certainty that steel will supplant iron in the near future.
5. The impetus to the general development of steel in the United States by such a step of the Government.
6. The necessity that, when the vessels should be completed, they should be equal, if not superior, to vessels in their class abroad.

Upon this report coming before the Naval Committee of the House, an exhaustive investigation in committee was made, and resulted in a report favoring the use of mild steel with but one dissenting vote. Among the reasons given in favor of it were:

1. That the quality of steel required could be produced in this country in sufficient quantity and at a reasonable cost.
2. The committee was surprised and gratified to learn that the United States at that time was the second country in the world, if not the first, in the manufacture of steel. That specimens of open hearth steel (which is the best for shipbuilding purposes, as the evidence clearly shows) from several of the largest manufactories in the country were presented to the committee. This steel is uniform in character, has a tensile strength of from 55,000 to 63,000 pounds per square inch, and a ductility of 30 per cent. It is capable of being folded under heavy hammers without crack or fracture.

The act of August 5, 1882, contains the following provision as to material: "Such vessels . . . to be constructed of steel of domestic manufacture, having as near as may be a tensile strength of not less than 60,000 pounds to the square inch, and a ductility of not less than 25 per centum."

After the contracts were made instructions were sent to all the navy inspectors, from which the following extracts are made as representing the best naval practice at that time:

Ship Plates.—The test pieces to be submitted to a direct tensile stress until they break, and in a machine of approved character.

The intial stress to be as near the elastic limit as possible, which limit is to be carefully determined by the inspector in a special series of tests. The first load to be kept in continuous action for five minutes. Additional loads to be then added at intervals of time as nearly as possible equal, and separated by half a minute; the loads to produce a strain of 5000 pounds of original section of the test piece until the stress is about 50,000 pounds per square inch of original section, when the additional loads should be in increments not exceeding 1000 pounds.

Conditions of Acceptance.—In order to be accepted the

average of the four test pieces must show an average tensile strength of at least 60,000 pounds per square inch of original section, and a final elongation in 8 inches of not less than 23 per cent.

If any single piece shows a tensile strength of less than 58,000 pounds or a final elongation less than 21 per cent. the piece from which it was cut shall be rejected and the test considered to have failed regardless of its average.

Lots of material which show a greater strength than 60,000 pounds per square inch will be accepted, provided the ductility remains at least 23 per cent.

It is interesting to note here that when the specifications were issued by the Navy Department a modification was made in the prescribed requirement for the elongation. It was reduced from 25 to 23 per cent. in 8 inches. The reasons given for this change were that at that time the most severe tests required abroad for similar material were by the French navy, naming an elongation of 20 per cent. in 200 mm. (8 inches equals 203.2 mm.). It had further been the boast of the American manufacturers that their iron was superior to that in general use in Europe, and that American steel deserved the same reputation. The table hereafter given shows that the average elongation obtained was 25.52 per cent., but at that time the ductility was one of the most troublesome elements to meet and caused the greatest number of rejections:

Quenching Test.—A test piece shall be cut from *each* plate, angle or beam, and after heating to a cherry red, plunged in water at a temperature of 82 degrees F. Thus prepared, it must be possible to bend the piece under a press or hammer, so that they shall be doubled round a curve, of which the diameter is not more than one and one-half times the thickness of the plates tested, without presenting any trace of cracking.

These test pieces must not have their sheared edges rounded off, the only treatment permitted being taking off the sharpness of the edges with a fine file.

Angles, Beams, Bulb Bars, Tee Bars, &c.—In every lot of 20 angles or beams, &c., test pieces to be cut from the webs of two taken at random, one from each. These pieces to be fashioned in the same way and to be subjected to the same tests, both tensile and quenching, and to fulfill the same requirements for acceptance as already prescribed for ship plates.

Angle bars to be subjected to the following additional tests: A piece cut from one bar in 20 to be opened out flat while cold, under the hammer; a piece cut from another bar in the same lot shall be closed until the two sides touch, while cold; a piece from the third bar of the lot shall be bent cold into a ring, so that one of the sides of the angle bar shall be kept flat and the other side forming a cylinder of which the internal diameter shall be equal to one and one-half times the breadth of the side which remains flat. The angle bar submitted to these tests must show neither cracks, clifts nor flaws.

Single tee bars to be submitted to the following tests: A piece to be cut from the end of a bar taken at random from each lot of 20, and to be bent cold into a half ring, so that, the web remaining in its own plane, the cross flanges shall form a half cylinder, of which the internal diameter shall equal four times the hight of the web of the tee bar.

At the end of another bar of the same lot the web to be split down its middle for a length equal to three times its total depth, and a hole drilled at the end of the slit to prevent it spreading; the piece thus split to be opened out in its own plane, so as to make an angle of 45 degrees with the rest, care to be taken that the part opened shall be kept straight, except that it must be joined to the rest of the bar by a bend of small radius.

Bulb bars are to be submitted to the same tests as those prescribed for tee bars, except that in bending, one or more heats may be used.

All bars submitted to these tests must show neither cracks, clifts nor flaws.

Rivets.—From every lot of 500 pounds four rivets are to be taken at random and submitted to the following tests, one rivet to be used for each test: First, a rivet to be flattened out cold under the hammer to a thickness of one-half its diameter without showing cracks or flaws; second, a rivet to be flattened out hot under the hammer to a thickness of one-third of its diameter without showing cracks or flaws; third, a rivet to be bent cold into the form of a hook with parallel sides without showing cracks or flaws; fourth, a rivet to be tested by shearing by riveting it up to two pieces of steel which are to be submitted to a tensile strain, the rivet not to shear under a stress of less than 50,000 pounds per square inch.

The Chester Rolling Mills, Chester, Pa.; the Norway Iron & Steel Company, South Boston, Mass., and Park Bros. & Co., Pittsburgh, Pa., made the ship and boiler plates; the Phœnix Iron Company, Phœnixville, Pa., the angles, tees and deck beams.

Assistant Naval Constructor R. Gatewood and Assistant Engineer B. C. Bryan were assigned to the work at Phœnixville. At that time the Phœnix Iron Company had no steel mill, and a lot of blooms of Bessemer and open hearth steel were ordered as an experiment from the Pennsylvania Steel Company, Steelton, Pa., and the Cambria Iron Company, Johnstown, Pa. These were rolled into various shapes at Phœnixville and were tested by the writer in accordance with the naval requirements. As a result of these tests, combined with what knowledge existed at that time regarding the relative merits of Bessemer and open hearth steel, a contract was entered into with the Cambria Iron Company to supply the blooms for the shapes required of open hearth steel and the writer was sent to Johnstown to accept the blooms. At this time the filling of an order of steel to meet these requirements was looked upon as something of an undertaking, as very little material with such low carbon and such high ductility had been manufactured for any important structures.

How the Steel Was Made and Tested.

The steel was made in two 15-ton Pernot revolving furnaces, with 16-foot pans, erected in 1878-1879. Ferromanganese was added before tapping and the bath was rabbled while the furnace revolved. The ingots were top cast and weighed about 5500 pounds each. One ingot was rolled in the blooming mill as soon as possible and two test billets removed, which were hammered down to slabs about 3 inches thick, reheated and rolled into 6 inch by 7-16 thick flats, from which the tensile tests were cut. The other ingots were allowed to cool off completely awaiting the results of the tests, when if satisfactory they were rolled into blooms of ordered sizes. A quenching test was made at the same time.

Considerable difficulty was experienced at first in making the steel. In the first 20 heats made 11 were rejected, mainly on account of failure to show the required elongation and some few failing to pass the quenching test.

Part of the trouble was also caused, in the mind of the writer, on account of the fact that when not making this soft steel the furnaces were making very high carbon steel for springs and agricultural purposes, and on changing from this grade were very apt to miss the next heat or two. This trouble was, however, overcome in a short time, when heat after heat was satisfactorily made.

Large flaws in the blooms were chipped hot in the blooming mill, and it was the practice for some time to carefully examine each bloom when cold and chip the flaws down to solid metal.

The acceptance of the quality of the blooms on the above tests was difficult because the blooms were rolled at Phœnixville into all kinds of sizes, from heavy deck beams to very light angles, and in these shapes were again tested and finally passed upon by the Government inspector. This method was afterward changed, a Government inspector being sent to Johnstown to accept the steel from the Cambria Iron Company.

At Phœnixville, some trouble was experienced at first in the rolling mills, because the heating of steel was new to the heaters, and in a few cases, at first, some of the blooms were overheated. These bars were generally discovered when the quenching tests were made.

The method of making the tests as before noted was very peculiar, and in these later days of expeditious working would have been looked upon as disastrous. The average time consumed in making 20 tests, taken at random, was 20 minutes each. Later on, the time of the application of the first load was reduced from five minutes to one minue. Taking everything into account on these tensile tests, it was impossible to break more than 20 pieces in a day.

The following table shows the average results of the more important elements of the steel from the shapes:

	Accepted material.	Rejected for lack of elong.	Rejected for low ult.	Rejected quenching test.
Number of heats.....	114	10	6	3
Number of tests.....	433	21	22	12
Average carbon, per cent.	0.160	0.162	0.133	0.166
Average elastic limit...	41,440	44,133	36,796	39,153
Average ultimate strength	64,057	65,871	58,284	62,640
Average elongation, 8 in.	25.42	21.91	27.11	26.02

At first the division for acceptance under the specification was a lot of 20 pieces, from which were made:

On all shapes	2 tensile tests. 20 quenching tests.
On angles	1 open test. 1 closed test. 1 bent ring test.
On tees	1 ring test. 1 split bending test.
On decks and bulbs	1 split bending test.

On account of the unavoidable confusion existing by reason of the unit of acceptance being a lot of material, which might contain a number of heats, the unit was changed to a heat, the same number of tests being prescribed.

After the year 1886 the use of softer grades of structural steel increased slowly, as will be evident from an examination of Mr. Schneider's table, but it seems evident or likely that the effort of the Government to obtain a low carbon steel with high ductility in 1883 was a very courageous attempt, as there was no precedent for material of that grade in the United States at that time.

Several of the reasons given in the report of the committee of the House for its use in these vessels seem to have materialized, notably: 1, The impetus which such use gave to the steel industry specially in the introduction and use of low carbon steels for structural purposes; 2, the fact that iron in the near future would be replaced by steel, as 12 years afterward, in 1893, the Carnegie Steel Company, in the preface of their pocketbook, said: "The feature of this edition is the elimination of all data relative to iron sections. Our product hereafter will be exclusively steel."

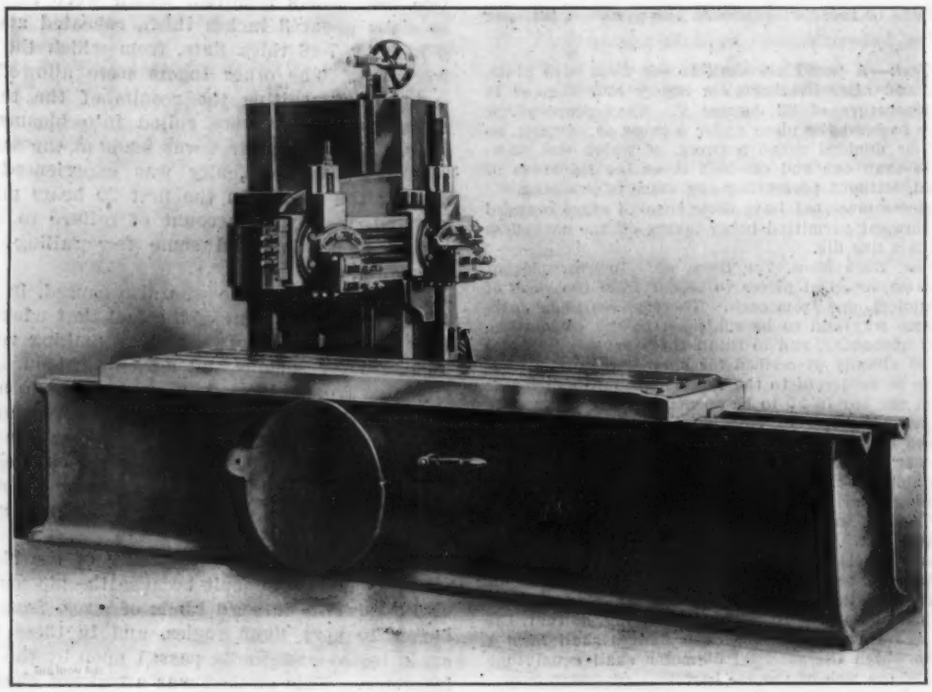
Looking back over the whole field, it seems fair to say that the effort to obtain what is now likely to be regarded as a standard structural steel for ordinary purposes was first attempted by the Government for use in the first steel vessels of our modern navy.

The Broderick & Bascom Rope Company, St. Louis, Mo., closed its factory for the entire day on June 25, gave its 300 or more employees free tickets of admission for themselves and their families to the World's Fair, and bore the expense of entertaining them on the Pike, which is the same as was the Midway at Chicago and other expositions. The company's exhibit of wire rope in the Manufactures Building has been pronounced among the handsomest and most unique one-article displays ever seen at any exposition. The many flattering encomiums brought out by this display induced a desire by the company to have its employees view the result of their skill as exemplified by this exhibit, which was fully appreciated by them.

The Cleveland Open Side Planer.

In the design of the tool shown herewith the aim was to secure simplicity of construction and rigidity sufficient to withstand the heavy strains of modern work. The bed and column are of box section, the former being cast closed on the upper surface and ribbed at intervals with three cross partitions opposite the base of the column. The column is cast in one piece with the bed up to the level of the table, and the upper column is bolted direct to it by means of broad flanges. The V's of the table ways have an angle of 100 degrees and give ample bearing surface, insuring easy running. Oil pockets are provided from which automatic oilers carrying the oil to the top of the V's to maintain perfect lubrication. The cross rail is gibbed on both the front and rear of the column, the front gib being cast solid with the rail.

The machine, as built in larger sizes, though not so shown in this illustration, is equipped with side heads which operate independently of the cross rail heads. By removing the cross rail, these side heads may be operated to the full hight of the column.



THE CLEVELAND OPEN SIDE PLANER.

All gears are inclosed. Automatic feeds are provided in both horizontal and vertical directions, and can be operated from either side of the machine. No part of the machine extends below the floor. A simple belt shipping device is used, which shifts one belt at a time and avoids the shrieking occasioned when the belts slip on the pulleys. The ratio of the return speed of the table to the cutting speed is from 2½ to 1 to 4 to 1, as desired. The machine is adapted to either belt or motor drive, and with the former may be placed either parallel with or at right angles to the line shaft.

This new open side planer is built by the Cleveland Planer Works, 1260 Superior street, Cleveland, Ohio. The standard sizes of table are 30, 36, 42, 48, 54, 60 and 72 inches wide, of any length.

Benzine locomotives have been run for a time in a number of German, Belgian and Austrian mines, and the results attained are said to be very satisfactory in every respect. A little engine draws a train composed of 25 trucks on a narrow gauge underground line and has a capacity of 25 tons. The capacity of the benzine motor is 8 horse-power.

Trade Publications.

Metal Working Machine Tools.—The Garvin Machine Company, Spring and Varick streets, New York, has recently issued a new catalogue of agency goods which are carried in stock. These include Hamilton, Blaisdell, Davis, Hoefer, Slate and Barr 10 to 44 inch drill presses; Blaisdell, Hamilton, Springfield (Ideal), and New Haven 12 to 60 inch engine lathes; Flather, New Haven and Cleveland planers 22 to 60 inches (in length); Springfield and Ohio friction, crank, back geared and triple geared style G shapers, 12 to 28 inch stroke; Bliss, Adriance, Wheeler and Royersford punch presses and shears; and Diamond, Builders Iron Foundry, Blount and Besly grinding and polishing machinery. It is a comprehensive catalogue of convenient desk or pocket size and contains considerable descriptive matter in connection with its profuse illustrations.

Transmission Chains.—A neat booklet from the Link Belt Engineering Company, Nicetown, Philadelphia, is descriptive of the Renold silent chain. Following a description of the recently patented bushed type chain are illustrations comparing the action of the Renold chain with ordinary chains and illustrations of various applications. In the new type of chain, by transferring the wear from the hole of the link to a case hardened bushing, the old trouble due to stretching is practically eliminated.

"Oil vs. Grease."—The special advantages of graphite for lubricating are set forth in a booklet having the foregoing title, received from the Joseph Dixon Crucible Company, Jersey City, N. J. Two pamphlets have also been issued, one on Dixon's Ticonderoga graphite grease, which sets forth its superiority to plain grease for all heavy work, while the other deals with Dixon's graphite cup greases and discusses the benefit of adding flake graphite to greases.

Electric Locomotives.—Bulletin No. 8 from the Jeffreys Mfg. Company, Columbus, Ohio, concerns electric locomotives for gathering purposes. The illustrations show several types of the locomotive, and the text is a discourse on their use in mines, method of operating and their advantages.

Conveying, Elevating and Power Transmission Machinery.—Catalogue A from the Williamsport Clutch & Pulley Company, Williamsport, Pa., successor to the Crowell Clutch & Pulley Company, Westfield, N. Y., and the Rondio-Bubb Foundry Company, Williamsport, Pa., is a very complete catalogue on the foregoing subjects. It covers some 170 pages and is divided into parts, the first containing illustrations of standard types of conveying appliances; the second, standard types of elevators; the third, types of coal handling apparatus; the fourth, details of elevator and conveyor construction; the fifth, conveyor and elevator chains, and the sixth, standard power transmitting machinery, clutch pulleys, hangers, &c. Price-lists and tables of sizes are given throughout.

Steam Engines.—The new Hamilton vertical cross compound engine, recently brought out by the Hoovens, Owens & Rentschler Company, Hamilton, Ohio, is described in an attractive publication issued by the company. Beautiful half-tone illustrations show the size and various parts of this type of engine, which is now being exhibited at the Louisiana Purchase Exposition. There are front and rear views of the engine, views of the valve gear on both cylinders, detail views of steam and exhaust valve gear, piston, cross head and connecting rod; also line drawings showing elevations and vertical section. This engine has a normal rating of 2500 horse-power and is adapted to be direct connected to a 1500-kw. alternating generator. The cylinders are 34 and 68 x 54 inches; the speed is 83 revolutions per minute, and the fly wheel is 22 feet in diameter, weighing 120,000 pounds. Other sizes will be made ranging from 16 and 32 x 36 inches to 48 and 96 x 60 inches, which will be adapted for all medium speeds, any desired steam pressure and for belt or direct connection.

Air Compressors.—Bulletin No. 350 from the National Electric Company, Milwaukee, Wis., describes types H and I motor driven compressors for intermittent and continuous service. These are claimed to be the most compact form ever built for the required service. Numerous illustrations of the compressors with parts removed to show the construction are given; also one of the automatic compressor governors, attended with a description. Other illustrations show portable outfits. Dimensions, capacities and other data are given in a table, and a diagram shows the method of connecting.

Tubing.—The Standard Welding Company, Cleveland, Ohio, has issued a handy pocket catalogue of tubing, seamless steel rims and bicycle parts. The booklet is handsomely bound in a three-color cover and the body is printed in two colors. It contains a number of illustrations and valuable tables of weights and dimensions of tubular goods.

Machinery.—The new 1904 catalogue of the Marshall & Huschart Machinery Company, Chicago, consists of 150 9 x 12 inch leaves printed on one side, perforated and bound in a Tengwall patent loose leaf binder, having handsome cloth board covers and Morocco back. The leaves are numbered, and from time to time new leaves will be issued to replace present ones as changes warrant it. Nearly 200 types of machines and tools, made by the 30 odd firms represented by the Marshall & Huschart Machinery Company in the West are illustrated and briefly described. The line includes lathes, drills, boring and turning mills, milling machines, shapers, planers, presses, punches, shears, rolls, slotters, key seaters, bolt cutters, nut tappers, pipe machines, steam hammers, tool grinders, saws, centering machines, arbor presses, wheel presses, &c., in great variety of style, size and application.

Small Tools.—The Baird Machinery Company of Pittsburgh, Pa., has issued catalogue C on the subject of small tools. This is a cloth bound book of 650 pages, about 6 x 9 inches in size. It contains over 1300 illustrations and such a great variety of tools and small parts that it is out of the question even to list the classes which they cover. Each is accompanied with table of sizes and prices as often as necessary, and a few words are given calling attention to features of importance. A very complete alphabetical index is appended, making the book a valuable addition to the files of those who have to do with the purchase of all sorts of small machine and hand tools and instruments for metal working and power transmission. A monthly publication from the same company, entitled *Machinery*, gives in its June issue illustrations and description of a 24-inch semi-automatic turret and a 28-inch Conradson engine lathe, and standard roller and ball bearing hangers, portable forges, blacksmiths' tools, emery wheels and a post drill.

Air Compressors.—The Chicago Pneumatic Tool Company, Chicago, Ill., has issued a 6 x 9 72-page catalogue illustrating its air compressors. It is of more than usual interest because of the minute details which are given of their mechanism, and the description of the broad principles which underlie the economical use of air as a power medium. The catalogue illustrates the company's new type G compressors, recently introduced to meet the demand for moderate priced compressors of simple design. They are made in the following types: G-DSC, duplex steam and compound air cylinders, with inter-cooler; G-CSC, the same with compound noncondensing steam cylinders; G-SS, single compressor, steam driven with air cylinder and heads water jacketed; this type is provided with automatic speed and pressure governor and unloading device; G-SB, single belt driven compressor, having cylinder and heads water jacketed and provided with automatic unloading device; G-DS, duplex steam driven; G-DB, duplex belt driven, and G-BC, compound belt driven.

Grinding and Polishing Machinery.—A catalogue on this subject has been received from the Goddard Machine Company, Holyoke, Mass. It illustrates the firm's Nos. 1 to 7 wheel grinders, No. 21 buffing lathe, swing frame grinder, 20-inch water tool grinder, No. 1 surface grinder, automatic knife grinder, fire wheel grinder, combination grinder and self contained grinder. Inclosed leaflets show Nos. 3, 4, 5 and 6 surface grinders. Each illustration is attended with brief descriptive matter and table of dimensions.

NOTES.

"How to Use, Test and Adjust Architects' Levels" is the subject of a little pamphlet from Kolesch & Co., 138 Fulton street, New York. It will be found useful to those who have occasion to handle instruments of this class.

The Holtzer-Cabot Electric Company of Boston, Mass., has issued a leaflet showing views of its Brookline and Boston works and several types of apparatus which it manufactures.

The Foos Gas Engine Company of Springfield, Ohio, has issued circular 65, giving "Points of Advantage" of the Foos engine. It forms a unique and exemplary piece of trade literature in that it gives in a very condensed form the important features which characterize the various parts of the engine.

The *Arrow*, a publication of the N. & G. Taylor Company, Philadelphia, is issued periodically to draw attention to the Taylor Old Style tin. The last issue is full of protests against specifications which allow contractors to substitute "just as good" tin for the Taylor Old Style.

The American Mfg. Company, 65 Wall street, New York, is distributing a pamphlet on the "Advantages of Rope Transmission in Textile Plants," being a reprint of a paper by Fred. S. Greene delivered before the New England Cotton Manufacturers' Association, Boston, Mass., April 28, 1904. An abstract of this paper was given in *The Iron Age* of May 5.

A pamphlet from the United Engineering & Foundry Company, Pittsburgh, gives a list of users of lever shears as made by this company and a few copies of testimonial letters.

The Sturtevant Mill Company, Boston, Mass., is distributing a leaflet illustrating balanced rolls, which are claimed to crush rock with one-quarter the shock common to roll rock reducing machines.

The Brown Corliss Engine Company, Corliss, Wis., will increase its working capital $150,000, the stockholders having recently voted favorably on the proposition. This will not only put the company in excellent financial shape, but also in a position to carry on some of the largest work on the market. The company is building an up to date engine in every respect, has one of the most modern shops in the country, and with the increased capitalization will be able to enlarge its business very materially.

Request for Catalogues.—Rinn & Davis, manufacturers' agents, Baltimore, Md., desire to receive from manufacturers and jobbers catalogues of machinery and supplies for contractors, factories, mills and power plants to complete their files.

The Iron Age

New York, Thursday, July 7, 1904.

DAVID WILLIAMS COMPANY, - - - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - - - ASSOCIATE EDITOR.
RICHARD R. WILLIAMS, - - - - - - - - - HARDWARE EDITOR.

The Treasury Deficit and Outlook for Revenue Legislation.

The publication by the Treasury Department of the figures showing the status of the revenues at the end of the fiscal year which expired June 30, and disclosing a deficit of more than $41,000,000, has stimulated a great deal of speculation as to whether Congress is likely to consider it necessary to undertake any tariff or revenue legislation in the immediate future. It is understood that Treasury officials have considered the question with some care and are inclined to believe that present conditions will not be regarded as calling for action by Congress next winter and that there is no imperative demand for legislation to provide additional revenues within the next year or two, and probably not until commercial developments render it advisable to give the tariff a general overhauling.

The total receipts for the fiscal year 1904 amounted to $541,186,745, as compared with $558,887,525 in 1903, showing a loss of about $17,700,000. The disbursements amounted to $582,539,071, against $506,176,590, which is an increase of slightly over $76,000,000. The decline in the receipts was due chiefly to the falling off in customs collections. The receipts from customs during the fiscal year just closed amounted to $262,068,483, as compared with $283,891,718 a year ago. The loss in customs receipts, however, occurred early in the fiscal year, while for the month of June the collections exceeded those for the corresponding month a year ago by nearly $1,000,000. Whether the Presidential campaign and the uncertainties of the coming elections will serve to curtail the national income from customs cannot be foreshadowed, but past experience indicates that no material increase is to be expected before next December.

The loss in revenue from customs during the past year, amounting to nearly $24,000,000, was distributed throughout nearly all of the principal import schedules, but nearly $10,000,000 was due to the decline in the importation of iron and steel products. While the detailed figures for the month of June are not yet available, officials of the Treasury Department have prepared an estimate which will doubtless be found to be a very close approximation to the official statistics. The total imports of iron and steel for the fiscal year 1904 are given in round numbers at $27,000,000, as compared with $51,617,312 in 1903, $27,180,247 in 1902 and $17,874,789 in 1901. Calculating the average rate of duty at 40 per cent., the customs receipts from the imports for 1904 would amount to about $10,800,000, as compared with $20,646,924 in 1903. The value of the imports of pig iron in 1904 shows a falling off of nearly $12,000,000, and a decline in ingots, blooms, slabs, billets, steel bars, &c., of nearly $6,000,000 is recorded. Other items showing substantial decreases in importation include scrap iron and steel, bar iron, rails, wire rods, machinery and "all other" manufactures of iron and steel.

The receipts from internal revenue during the fiscal year 1904 amounted to $232,435,695, as compared with $230,115,255 for 1903. This small increase is hardly equal to the normal advance in these receipts from year to year. The internal revenue, being derived chiefly from articles of luxury, the consumption of which is always reduced during periods of industrial depression, constitutes a very sensitive barometer, and the figures for the year just closed indicate that the people at large are disposed to take a somewhat less optimistic view of the business outlook than they did a year ago. Miscellaneous receipts for 1904 amounted to $46,682,595, as compared with $44,880,551 in 1903, an increase that is without special significance.

Of the $76,000,000 increase in expenditures for the fiscal year 1904, $50,000,000 should be charged to the Panama Canal and $4,600,000 to the advance made to the Louisiana Purchase Exposition Company. The balance of about $20,000,000 is due almost entirely to the unusually large appropriations for the navy, the expenditures on this account for 1904 having aggregated nearly $103,000,000, as compared with $82,696,000 in 1903. The item of pensions shows an increase from $138,725,617 to $142,558,335, but this increase has been offset by a decline of about $4,000,000 in interest charges and $2,500,000 on account of the Indians.

The Treasury officials are chary about making any predictions with regard to the condition of the revenues a year hence, although they are now gathering data that will be used in the preparation of the estimate which the Secretary of the Treasury annually transmits to Congress in December. Based on the expenditures authorized by the recent Congress, there is little prospect of any decrease in the total outlay on behalf of the Government, and if there is any surplus on hand on June 30, 1905, it will be due to increased receipts. In transmitting his annual report to Congress last December, the Secretary of the Treasury did not hesitate to say that, in his opinion, there would be a deficiency of at least $26,000,000 at the end of the fiscal year 1905, and there now seems to be no good reason for revising this estimate.

The experts of the Customs Division have been making some interesting figures to show the probable loss in revenue as the result of the Cuban reciprocity treaty. These estimates naturally have a special importance for the reason that it is conceded that the coming fiscal year will show a deficit. The reduction in the duty on raw sugar is put at approximately $10,000,000, while the cut in duty on leaf tobacco, cigars, &c., will amount to about $2,150,000, making a total of $12,150,000, representing the 20 per cent. reduction on Cuban products.

With these figures before them, the Treasury officials are obliged to consider with care the question as to the necessity for additional revenue to meet the very considerable deficit that will accrue in 1905 and probably for several years thereafter. It appears, however, that notwithstanding the fact that the Government is now doing business on a very narrow margin, the cash balance in the Treasury is so large that there is no occasion for special legislation relating to the revenues in the near future. The available cash balance at the beginning of business on July 1, exclusive of the $150,000,000 gold reserve, was $166,965,372, to which should be added approximately $50,000,000 in the shape of disbursing officers, balances, which are cash in the Treasury, but which are conservatively deducted from the "available balance." It thus appears that the Government has on hand more than $350,000,000 with which to meet emergencies of all kinds, a sum large enough to warrant Congress in deferring revenue legislation until changes in the laws are demanded by other considerations. Meanwhile, the situation of the national finances is more satisfactory to busi-

ness interests than if a great surplus was accumulating in the Treasury.

The Annual Wages Settlements.

The settlement of the sheet and tin plate wages schedules in union mills, effected last week, removes from the iron trade what might have been a disturbing influence. Possibly, so far as sheets and tin plates themselves are concerned, the restriction of supply by a protracted stoppage of the mills would have had a beneficial effect from a market standpoint. Sheets, especially, are suffering from an excess of producing capacity and are probably lowest in price of any finished product, relatively speaking. They were somewhat cheaper in 1897 and 1898, but in those years all other finished products were selling at much lower prices than now. The unsatisfactory condition of the sheet trade is demonstrated by the limited number of mills in operation. The American Sheet & Tin Plate Company is undoubtedly in as good position to make sheets cheaply as any of its competitors, if not better situated than they are, yet it is only operating 62 per cent. of its capacity. Sheets are selling so low, when compared with the cost of raw materials and labor, that, notwithstanding the acceptance of the manufacturers' terms, it would not be surprising if the workmen in more mills should be laid off to await the appearance of the fall demand. The tin plate trade is in far better shape, as fully 90 per cent. of the American Sheet & Tin Plate Company's capacity is in operation, which indicates that the independent mills are also able to secure a fairly satisfactory volume of business.

Several times in the recent past has a stoppage of the sheet and tin plate mills, by wages disagreements, checked a decline in prices or brought about a better market condition for their product. In 1900, when tin plates were suffering from excessive producing capacity, a stoppage of three months followed the failure to agree on a scale of wages for the term beginning July 1. In 1901 occurred the strike in the union sheet and tin plate mills of the United States Steel Corporation, which continued for nearly three months from July 1. That strike ended with warehouses absolutely empty, and it took the mills so long to catch up with the demand and replace stocks, that no controversy over the wage scale took place in 1902. Through the early months of 1903 no complaint was heard of lack of trade, but before the summer was far advanced the supply had overtaken the demand, and many mills were obliged to shut down for lack of orders. Since then the sheet mills have run spasmodically, but the tin plate mills have been operated more regularly. The claim has been made, however, that the greater activity in the tin plate industry was not wholly due to the pressure from consumers, but could be accounted for partly by the accumulation of large stocks in manufacturers' warehouses in anticipation of the cessation of operations by a disagreement over the wages schedule. How far these stocks have been reduced by sales for direct export is not known, but it is probable that they have been cut down to some extent. It is to be hoped that they are not larger than the requirements of a healthy trade may demand.

In some other branches of the iron trade settlements of wage schedules for the coming year are pending. One of these wage settlements affects the Western bar iron mills and another the Southern blast furnaces. The bar iron controversy, however, is to be adjusted by a Board of Arbitration and is unlikely to cause a suspension of operations. The wages question which affects the Southern blast furnaces is that of the coal miners' schedule which governs the year beginning July 1. The furnace operators and the miners have been unable to come to an agreement, and the former are stated to be preparing for a long suspension. Some furnaces have already been banked on account of the closing of mines upon which they depend for fuel. The attitude of the furnace operators in this disagreement indicates that they are not seriously averse to a stoppage of operations throughout the Southern district, as the production of pig iron will thereby be restricted, to the benefit of the market.

The Southern wages disagreement is thus the only one of any importance now confronting the iron trade, and it may not be of long duration. Labor troubles are always disturbing elements, their influence extending much beyond the particular branch immediately affected. Even when overproduction exists, and it may seem desirable to have a complete suspension of productive activity, it is always better for the trade at large that the output should be reduced through the closing of works unable to compete at low prices than through a wholesale stoppage such as a disagreement over wages brings about. In the one case a gradual change in conditions occurs to which the trade conforms, while in the other a dislocation of dependent business interests usually takes place, which may cause serious inconvenience to consumers, besides imposing upon them vexatious uncertainty in endeavoring to plan for the future. The iron trade is fortunate at this time in having so few labor troubles affecting the producing interests.

CORRESPONDENCE.

The Value of a Trade-Mark.

To the Editor: The writer of the editorial on page 28 of *The Iron Age* of June 16, discussing the law of trade-marks, has doubtless been misinformed by the many circular letters recently distributed by some patent attorneys. Its effect can only be to disturb the confidence of manufacturers in our trade-mark system and to lead them to spend money uselessly in registering their trade-marks in the departments of the various States, and I therefore venture to write calling your attention to the points in which the editorial is incorrect.

Your editorial states that "so far as its use in the domestic market is concerned the trade-mark is absolutely unprotected. The competitor may use it at will, if he is inclined to employ such sharp practice," and that "in order to protect securely a trade-mark to be used in trade within the United States, it must be registered in every State and Territory of the Union." This is entirely erroneous. The fact is that there is no country in which trade-marks are more adequately protected in their relation to domestic trade than in the United States.

While it has been settled law for over 20 years that only those trade-marks can be registered in the United States Patent Office which are used in connection with foreign nations or with Indian tribes, yet property in a trade-mark is not acquired by registry, but by its adoption. Any manufacturer who is the first to adopt and use a trade-mark for a particular class of merchandise can maintain his rights in the courts of any State or (if he is suing a citizen of another State) in the courts of the United States, without registering it either in the offices of the States or at Washington. The exclusive right of the first user of a trade-mark cannot be taken from him by its registration by another manufacturer, and therefore it is neither necessary nor in most cases is it useful to register domestic trade-marks in the offices of the several States. Very respectfully,

JAMES K. BAKEWELL.

PITTSBURGH, June 28, 1904.

Last week the first 8-inch pipe was made at the new mill of the Susquehanna Iron & Steel Company, Columbia, Pa.

The Uniform Bill of Lading Opposed by Shippers.

Railroads in the Trunk Line Association, the New England roads, the Central Freight Association and the Association of Lake Lines last December notified the trade that on and after April 1 they would enforce their uniform bill of lading. At that time they sent out copies of the bill of lading broadcast and invited criticisms from shippers and printers. Some of the criticisms resulted in amendments, and so many requests came from shippers for an extension of time, owing to the loss that would result from making unusable large quantities of printed matter on hand, that the date for enforcing the new documents was postponed until October 1.

The shipping trade in general does not object to a uniform bill of lading as such. In fact, there are many features of it that are highly commended as eliminating inequalities in rates, rulings and customs that now prevail. But a formidable opposition has arisen in Chicago and elsewhere to certain features of the new bill of lading as it is now worded. This opposition took the form of a meeting of shippers, held in the Auditorium, Chicago, June 28. This meeting was called by the Illinois Manufacturers' Association, who sent out circulars to shippers, not only in Illinois, but throughout the territory affected. J. J. Wait, traffic manager of Hibbard, Spencer, Bartlett & Co., Chicago, called the meeting to order on behalf of the Illinois Manufacturers' Association, and John B. Daish of Washington, representing the National Hay Dealers' Association, was made chairman, and E. L. Williamson of the Cincinnati Shippers' and Receivers' Association was elected secretary. These three men constitute a committee to formulate plans for opposing and, if possible, overthrowing the proposed action on the part of the carriers. It is also proposed that this committee shall form an association known as the American Shippers' Association, which shall include in its membership the leading shippers of the country, for the purpose of protection against unjust demands or rulings on the part of the carriers.

Some of the Objectionable Features.

The prime objection to the proposed uniform bill of lading lies in the fact that each shipper is required to affix his legal signature to each bill, making it in effect a contract which relieves the carriers of practically all responsibility, as is indicated by the following paragraph, which forms Sec. 1 of the conditions of the contract:

> No carrier or party in possession of all or any of the property herein described shall be liable for any loss thereof or damage thereto by causes beyond its control; or by floods or by fire; or by quarantine; or by riots, strikes or stoppages of labor; or by leakage, breakage, chafing, loss in weight, changes in weather, heat, frost, wet or decay; or from any cause if it be necessary or is usual to carry such property upon open cars.

It is contended that this paragraph will relieve the railroads from any liability, whether loss is due to their own carelessness or not, and that the word "breakage" would cover all damage to goods by wrecks. The penalty attached to the nonacceptance by the shippers of the bill of lading is an advance of 20 per cent. above the regular tariff rate, at which advanced rates the railroads agree to accept the consignment subject to such "limited liabilities" as are provided by common law and by the laws of the United States and of the several States. The cost of marine insurance is also added to any part of the route over which the goods may be shipped by water.

Clause 5, covering the charge for demurrage, is as follows:

> Property not removed by the person or party entitled to receive it within 24 hours after its arrival at destination may be kept in the car, depot or place of delivery by the carrier, at the sole risk of the owner of said property, or may be, at the option of the carrier, removed and otherwise stored at the owner's risk and cost and there held subject to lien for all freight and other charges. The carrier may make a reasonable charge per day for the detention of any vessel or car and for use of tracks after the car has been held 48 hours for loading or unloading, and may add such charge to all other charges hereunder, and hold said property subject to a lien therefor. Property destined to or taken from a station at which there is no regularly appointed agent shall be entirely at risk of owner when unloaded from cars, or until loaded into cars; and when received from or delivered on private or other sidings, shall be at owner's risk until the cars are attached to, and after they are detached from, trains.

This is taken by the shippers to be so "wide open" as to permit the railroads to make any charge they see fit for demurrage. They might, for instance, charge $10 per day demurrage, and when the matter came up in court, demonstrate to the judge or jury that the cars in question would have earned at least that amount of money had they not been detained. It is observed, too, that demurrage is made a lien on the goods along with freight charges.

Attention is also called to Clause 10, which reads as follows:

> Owner or consignee shall pay freight at the rate herein stated, and all other charges accruing on said property, before delivery, and according to weights as ascertained by any carrier hereunder; and if upon inspection it is ascertained that the articles shipped are not those described in this bill of lading, the freight charges must be paid upon the articles actually shipped, and at the rates and under the rules provided for by published classifications.

This is merely a reaffirmation on the part of the railroads of a ruling which shippers claim has been grossly abused in the past, but heretofore it was possible by firms conducting a vigorous railroad claim department to secure rebates for overcharges, while under the new bill of lading, in which the clause is part of the contract signed by the shipper, practically no redress would, it is held, be available. It is stated that a large percentage of the mass claims piled up in railroad claim departments is due to the arbitrary increase of weight or rate, or both, from the original bill of lading while the shipment is in transit. Accurate elevator weights, for instance, may be taken at the initial point, and yet the weight secured by any railroad scale *en route*, by any weigher, responsible or irresponsible, whether the car be shunted across the scale at too high a speed to make accurate weighing or not, may be used as the billed rate, and the consignee be made to pay a rate on that weight before he can receive his goods.

A Legal Point.

During the conference at Chicago, the point was made that, inasmuch as the shipment became the property of the consignee the moment it entered the hands of the carrier, the consignor could not be made to sign a contract that would make the consignee and owner liable to loss, or that would rob him of any of his rights in seeking redress through the courts or otherwise. Attorney Levy Mayer, who furnished legal advice to the Illinois Manufacturers' Association, also held that the proposed bill of lading was illegal because railroads could not limit their liability beyond their liability as common carriers under the common law, except on consideration of a reduced rate. On the present plan the current rates are demanded for their limited liability, and an advance of 20 per cent. is demanded for goods carried subject to their legal liability.

The new bill of lading requires that the words "not negotiable" be printed across its face, with the provision that, where it is desired by the consignor to make draft against bill of lading, the word "order" may be written immediately before or after the name of the consignee, which they contend will neutralize and counteract the not negotiable feature of the contract, and will make it negotiable paper to be handled by the banks.

Defense of Railroad Officials.

J. F. Tucker, chairman of the Central Freight Association, Chicago, explained to *The Iron Age* representative that the new uniform bill of lading does not differ from the bill of lading which has been in use for years, but that it only seeks to enforce, without partiality, certain clauses that have been loosely enforced heretofore. The rates, he states, are exactly the same, and the provision for charging an advance of 20 per cent. above the published tariffs for goods to be carried under common law liability had been printed in rate books for a long time, and was very generally understood, but was not uniformly enforced. He held that it was entirely immaterial whether the roads charged an advance for agreeing to carry goods on the common law carrier's liability basis or whether they made that the basis of their charges and made a specific reduction for carrying goods on the basis of a lesser liability. This, of course, means that if the courts decide that it is necessary for the railroads to

name a reduced rate, in consideration of the reduced liability, the roads will simply advance their tariffs to the higher basis and make a suitable reduction in tariffs for goods shipped at the specific lower liability. The uniform bill of lading is in the hands of a committee consisting of Frank J. Firth, chairman, 26 South Fifteenth street, Philadelphia, Pa.; James Bloomingdale, acting secretary, 143 Liberty street, New York; C. W. Bullen, commissioner Trunk Line Association, 143 Liberty street, New York; J. F. Tucker, chairman Central Freight Association, Monadnock Block, Chicago; W. F. Berry, chairman Boston Freight Committee, Boston, Mass.; C. C. McCain, commissioner Association of Lake Lines, Ellicott Square, Buffalo, N. Y.

The Pacific Coast Trade.

SAN FRANCISCO, June 25, 1904.—The wheat crop has turned out better than expected, and the cool weather of the past week or so has benefited it very much. The probabilities are that we will now have 600,000 tons of wheat in this State. The wheat crop of Washington is enormous, that of Oregon good and that of the Pacific Coast, as a whole, will not be less than 70,000,000 bushels, or over 2,000,000 tons. Take the wheat and barley crops of the three Pacific Coast States, with the fruit, wine and oil of California, and the lumber of all three, and our purchasing power was never before equaled. Not only in this State but all over the coast the outlook for hardware, machinery, &c., is unexcelled.

I refer here principally to our purchasing power of Eastern products and manufactures, inasmuch as our outside purchases are now confined chiefly to those of the East. The foreign element in this trade has been reduced to a minimum. Had the Eastern boom continued all this would have been changed, as we were obliged to go abroad for supplies of almost everything except pipe, hardware and machinery, which last we manufacture ourselves. As it is, there has been a great falling off in imports, with the single exception of pig iron, of which imports continue large. The "Seefahrer" a little over a week ago brought to hand from Antwerp 800 tons of pig iron. The imports of pig iron and tin plate for the first five months of the year have been as follows:

	Pig iron. Tons.	Tin plate. Boxes.
January	2,937	....
February	1,920	....
March	4,420	18,012
April	950	10,912
May	....	....
Totals	10,227	28,924

For the same time last year the imports were: Pig iron, 5244 tons, and tin plate, 3524 boxes. Of course, we have imported during this interval a considerable quantity of Eastern pig iron. The total importations for the year, both Eastern and foreign, will be very large, notwithstanding that we commenced the year with a good stock on hand. Our foundries, machine shops, &c., have been very active, while our shipyards have been busy too.

As regards tin plate, there will be a very large quantity needed this year, and the imports from foreign sources may be expected to be considerable. Including fruit and vegetables, California will this year put up nearly 3,500,000 cases, or 84,000,000 2½-pound cans, while the salmon pack of the coast will require 3,000,000 cases, or 144,000,000 1-pound cans. To this, for other purposes, we may add at least 20 per cent more, so that it may be seen that the tin plate trade with the coast will be a good one this year. While we have had, this year, some very considerable imports of structural steel from Continental Europe, the supply from that source is likely to be light, on account of the stocks on hand in the Eastern market. Then, too, the number and size of steel skyscrapers now building are much less than a year ago. A large number of frame buildings are going up or being contracted for.

The Benicia Agricultural Works, which have been successfully run for so many years by Baker & Hamilton of this city, are about to be reorganized with additional capital as the Benicia Iron Works. A foundry is to be added. J. O. L.

OBITUARY.

CAPTAIN WM. HENRY WHITE, contracting and consulting engineer, died July 2 in New York City. He was born in Philadelphia on March 4, 1844. When a mere boy he entered the United States Army, where he made an enviable record for gallantry. He received his commission as captain in the famous Sixth Cavalry of the regular army. After the restoration of peace he remained for a time in the army. Entering civil life, he became prominent in designing and constructing gas plants. Endowed with exceptional forensic ability, he won distinction as an orator, particularly as an after dinner speaker. He was a member of numerous clubs and other organizations, among them being the Lawyers' Club, the Lotos Club, the New York Athletic Club, the Yale Club, the New York Yacht Club, the Army and Navy Club, the Metropolitan Museum of Art, the New York Botanical Society, the Loyal Legion, Grand Army of the Republic and was an energetic member of the Old Guard. He was also active in Freemasonry. He had been married, but his wife died two years since.

F. R. PHILLIPS, member of the firm of F. R. Phillips & Sons Company, Philadelphia, Pa., was lost at sea on June 25 while passing through the Straits of Gibraltar on his return trip from a few weeks' vacation in Algiers. Mr. Phillips was well known in iron, steel and tin plate circles, having been engaged in business in those lines for the past 25 years. Prior to his death he was in charge of the London office of the firm.

DAVID MCDOWELL, president of McDowell, Stocker & Co., Chicago, died of heart disease June 27 at Eureka Springs, Ark., where he had gone for his health. Mr. McDowell had been a resident of Chicago since 1857. He served his time as a machinist with his father, John McDowell, who was a member of the firm of Vierling, McDowell & Co., architectural iron workers, dying on May 12 of this year. Later, David was employed as a traveling salesman by Charles H. Besly & Co. In May, 1895, he engaged in business with H. A. Stocker, under the firm name of McDowell, Stocker & Co., dealers in machine tools, at 59 and 61 South Canal street. Mr. McDowell leaves a widow, three sons and two daughters.

BERT SEXTON, night superintendent of the Brown-Bonnell works of the Republic Iron & Steel Company, Youngstown, Ohio, was mysteriously shot while sitting in his office one night last week and has since died.

Courts Enforce an Agreement to Keep Out of Business. — At Pittsburgh, in the case of the Pittsbugh Valve, Foundry & Construction Company against George E. Klingelhofer and others of Pittsburgh, affiliated with the American Foundry & Construction Company, an order has been issued restraining the defendants from engaging in the foundry, machine, valve and pipe fitting business in the United States east of the Mississippi River, and particularly from engaging in the business with or in the employment of the American Foundry & Construction Company for a period of ten years, from October 3, 1900, without the consent of the plaintiffs. George E. Klingelhofer was directed to pay the costs, while the bill against Charles A. and W. L. Klingelhofer was dismissed. The first named company was organized in 1900, and the defendant, as secretary of the Pittsburgh Valve & Machine Company, Limited, represented that concern in the negotiations for the consolidation, and was elected manager of the new company, from which he subsequently resigned, engaging with a competing company. His contention was that he was not bound by an agreement into which he had entered, promising not to engage in a competitive line of business for ten years.

The American Roller Bearing Company, South Framingham, Mass., has opened a branch office in the People's Savings Bank Building, Pittsburgh, in which vicinity it has several contracts for crane, car and shafting equipments.

The Amalgamated Wage Scales.

Before the boiling and finishing conference recently held between wage committees of the Amalgamated Association and the Republic Iron & Steel Company, at Cambridge Springs, Pa., was adjourned, it was arranged that in case no agreement on the boiling and finishing scales was reached by June 30 the mills should continue in operation and the matters under dispute should be submitted to a board of conciliation for settlement. No further conferences have been held on the boiling and finishing scales, and as no agreement was reached at the aforesaid conference, all the puddling and bar iron mills that sign the scale are now operating under this agreement. This is quite a concession on the part of the Amalgamated Association, which deserves considerable credit for adopting it, thus preventing lockouts or strikes, which in the past have proved so detrimental to the interests of organized labor and of capital as well. Under date of June 21, the Amalgamated Association sent out notices to the different lodges in mills in which the scale had not been signed, notifying the men to continue at work until an agreement has been reached. The Amalgamated Association has appointed M. M. Garland, ex-president, to act as its conciliator, but the Republic Iron & Steel Company and the Carnegie Steel Comapany have not yet appointed a man to serve in this capacity. No date has been set for another conference on the boiling, finishing and hoop scales, but it is likely one will be held this month. The agreement under which the mills continue in operation, pending a settlement of the scale, is as follows:

A yearly scale shall be presented, not later than May 1 of each year, said scale to take effect July 1. Failing in an agreement being reached by July 1 of any one year, one conciliator shall be selected by the ..... company, one by the Amalgamated Association, and the two so selected shall select a third.

These three conciliators shall meet the representatives of the ..... company and the general officers and representatives of the Amalgamated Association, of which there shall be such number of employees of the ..... company as the employees of the ..... company in good standing in the Amalgamated Association bear to the whole number of members of the Amalgamated Association in good standing who are governed by this scale.

They will then try to effect an agreement as soon as possible. Mills to run pending negotiations, and there shall be no cessation of work by the members of the A. A. of I., S. and T. W. It being understood that wages beginning July 1 shall be paid pending negotiations.

For the Company: .....

For ..... Lodge, A. A. of I., S and T. W.: .....

The Sheet and Tin Plate Scales.

Announcement was made in our issue of last week that a settlement of the sheet and tin plate scales had been affected, the men agreeing to accept a reduction of 18 per cent. in sheet and tin plate wages over the 1903-04 scale, or, in other words, the scale of wages in effect for one year from July 1 in sheet and tin plate mills that sign the scale is the same that has been in effect since early in April, when the men accepted a cut of 18 per cent.

The new sheet scale is based on 2.30 cents, at mill, for the average selling price of Nos. 26, 27 and 28 gauge plain sheet steel. The price for rolling these gauges, per ton of 2240 pounds, is $8.30 for No. 26, $9.02 for No. 27 and $9.60 for No. 28. These wages take 2 per cent. additional for each 1-10 cent advance above 2.30 cents selling price. The sliding scale is not now effective, as the market price is below those figures.

Sheet mills working three turns of eight hours each are now permitted to make ten heats per turn, instead of the old limit of nine. On two-turn mills the limit has been increased from 10 to 11 heats.

The tin plate scale is based on the market price of $3.40 at mill per box of 100 pounds coke tin. Wages advance 2 per cent. on each 10 cents increase. The limit of output has not been changed, Nos. 28 and 29, for instance, being 6650 pounds per eight-hour turn. As yet no agreement has been reached between the American Sheet & Tin Plate Company and the Amalgamated Association over the 3 per cent. rebate in wages allowed on tin plate for export. The Amalgamated Association desires this rebate abolished, while the American Sheet & Tin Plate Company wishes it continued. A conference on this matter has been arranged, to be held in Pittsburgh on July 23.

PERSONAL.

Edward G. Elcock of the Hansell-Elcock Company, Chicago, arrived in New York from Europe on July 3 on the "Celtic."

Robert C. Usher, for more than 30 years connected with the Plainville branch of the Bristol Brass Company, Bristol, Conn., has resigned his position with the company.

Frederick J. Worster, for 18 years superintendent of the rolling mills of the Waterbury Brass Company, Waterbury, Conn., has resigned because of poor health.

S. A. Wallace, who recently resigned as superintendent of the Alliance, Ohio, plant of the American Steel Foundries, has been made manager of the steel foundry and chilled roll departments of the United Engineering & Foundry Company at Pittsburgh.

Railroad Track Laying Diminished.

According to the *Railway Age*, 1937 miles of railroad track have been completed in the first six months of the year on 134 lines in 33 States and Territories. The track laid in the first six months of 1903 amounted to 2221 miles, while for the entire year it aggregated 5786 miles. If the same ratio is maintained during the present year the new mileage for 1904 will approximate 5000 miles. However, present conditions do not warrant the definite prediction that this ratio will be maintained, for a large percentage of the track laid during the past six months has been on lines which were graded last year and on which track laying was begun before the close of 1903. The work of grading since January 1 has proceeded on a much smaller scale than during the first half of 1903.

Increased operating expenses and decreased traffic, resulting in smaller net earnings, together with the continued stringency in the money market, furnish the explanation of a decline in construction. Operating expenses, already high, were materially increased during the first quarter of the year by the severity of the winter, and the spring found many of the railroads borrowing money for present necessities and constrained to retrenchment, both in their current expenses and in their projects for the immediate future. Consequently many plans for improvement and extensions proposed by some of the great railroad systems were suspended and are still held in abeyance.

The Howe-Brown Steel Plant Sold.—The Howe-Brown plant of the Crucible Steel Company of America, in Pittsburgh, has been sold to the Pennsylvania Railroad, the price being given as $750,000, cash. Negotiations for this sale have been under way for a year or more. The Pennsylvania Railroad will secure possession of the property just as soon as the equipment can be removed to other plants of the Crucible Steel Company. The price paid for this plant will give the Crucible Steel Company additional working capital and was directly responsible for an advance in the preferred shares of the company of about three points last week. The site will be used by the railroad for sidings and yards.

At a recent meeting of the Board of Directors of the La Belle Iron Works, Steubenville, Ohio, the resignation of President Jno. A. Topping was tendered and accepted and the following reorganization was made, to take effect July 1: Isaac M. Scott, president; E. W. Mudge, vice-president; R. C. Kirk, treasurer; H. D. Westfall, secretary; W. D. Crawford, general manager; A. J. Clarke, chairman of the Executive Committee. The company is operating all departments in full, with sufficient business ahead to promise continued activity.

MANUFACTURING.

Iron and Steel.

A Board of Trade has been organized at Meyersdale, Pa., with C. W. Truxal as president and E. R. Floto, secretary. It proposes to raise $15,000 cash and issue $20,000 in bonds to secure the location of a steel plant.

The report that the Ohio Works of the Carnegie Steel Company, at Youngstown, Ohio, would shut down early in July for an indefinite period is officially denied. So far as known this plant will continue in operation, turning out sheets and tin bars, with possibly a shutdown of a few days to make needed repairs.

The National Rolling Mill Company, Vincennes, Ind., contemplates the erection of an addition to its plant to cost $20,000. Plans are not yet entirely completed.

The three rod mills of the Illinois Steel Company at Joliet, Ill., closed for repairs June 25.

The Prouty Wire Company, which was organized a few months ago to manufacture high grades of special wire at Charlton, Mass., has given up its plant in that town and will probably go out of business altogether. This company is officered by former employees of the Washburn & Moen works of the American Steel & Wire Company. The Charlton mill, which has been known as the Prouty wire mill for a number of years, has been sold back to the former owner. It is not known whether or not it will again be operated for the manufacture of wire.

Everett Furnace, Everett, Pa., blew in June 26 after being out of blast eight weeks, during which time the stack was relined and other repairs made.

The National Steel & Wire Company, New York, contemplates making extensive improvements to its plants at New Haven, Conn.; Bayonne, N. J.; De Kalb, Ill., and Oakland, Cal.

The property and plant of the Baltimore Rolling Mill Company, Baltimore, Md., was recently sold to Harry Wehr for $90,525 by Thomas C. Weeks, the receiver.

Fulton furnace of the Globe Iron Company, Jackson, Ohio, which has been closed down since April 26, has been extensively repaired and new blowing engines, boilers, heaters, &c., have been installed. The stack will be blown in August 1.

The Kenton Iron & Steel Company, Cincinnati, Ohio, has increased its capital stock from $50,000 to $100,000, for the purpose of extending the plant and increasing the facilities.

At a meeting of the stockholders of the Atlanta Tin Plate Company, Atlanta, Ind., June 24, the following directors were elected: Cortland Van Camp and H. B. Hibben, Indianapolis; J. M. Whisler, D. C. Hobbs, John G. Dunn and James Henderson, Atlanta; John Kemp, Tipton; John G. Smith, Goldsmith and Henderson Coppick, Ekin. Officers will be elected at a later meeting. The Board of Directors authorized the sale of $125,000 first mortgage 6 per cent. bonds on the plant. The money will be used to complete the mill and leave a working surplus.

General Machinery.

The business of the Cockburn Barrow & Machine Company, Jersey City, N. J., has passed into new hands, and new officers have been elected, as follows: John Green, president; C. A. Weymouth, vice-president; L. P. Wood, secretary and treasurer, and William McIlvrid, general manager. The company has lately installed considerable additional machinery and is well equipped for general machine work in addition to its regular line of Cockburn barrows, concrete mixers and boilermakers' quick acting punches.

The Buckeye Forging & Specialty Company, Sebring, Ohio, manufacturer of the Renner turnbuckle, has appointed as agents John H. Heinbuecher, Mechanics' National Bank Building, St. Louis, and Jas. O'Donnell, Lake and La Salle streets, Chicago. The company has recently been organized with a capital of $60,000 and starts its plant with quite a large number of orders for turnbuckles.

The Standard Machinery Company, Mystic, Conn., is demolishing its old machine shop and intends to build on the site a brick structure for storage and other purposes. When this is completed the company plans to tear down the engine and boiler house and erect brick buildings in their places. The foundry will next be replaced by a brick structure, but this will probably not be done until next season. The purpose of the company is to entirely replace its frame buildings with more modern and fire proof brick buildings.

Blake & Johnson, Waterbury, Conn., have shipped a No. 9 rolling mill to China, where it will be installed by that Government in one of its mints. It will be used for rolling coin stock.

The Union Machine Company and the Union Screw Plate Company, affiliated companies of Fitchburg, Mass., are to erect new shops at Leominster, Mass., and will abandon their present locations when the new plant is ready for occupancy. It is understood that the new shops will be of considerable size.

The Pennsylvania Railroad Company has decided to go ahead with the erection of additional shops at Olean, N. Y., and improvements in the repair shops at that point formerly used by the Western New York & Pennsylvania before that company passed into the hands of the Pennsylvania. The additional buildings and improvements contemplated will involve the expenditure of about $150,000.

The Vilter Mfg. Company, Milwaukee, Wis., has recently closed contracts for a large number of refrigerating machines and ice plants, including two 300-ton, one 150-ton, two 100-ton, two 80-ton, two 75-ton, three 50-ton, one 25-ton, two 20-ton, one 40-ton, three 15-ton, one 18-ton, one 9-ton refrigerating machines and two 25-ton ice plants. It has also recently sold five 18 x 36 inch, two 22 x 42 inch, one 16 x 36 inch and one 15 x 36 inch Corliss engines, besides a large number of ammonia condensers and a quantity of pipe, tanks and other refrigerating plant appurtenances.

The Ocala Foundry & Machine Works, Ocala, Fla., has purchased a site upon which it expects to build a new plant with five times the present capacity. When the company moves into the new location it will be prepared to manufacture phosphate mining and saw mill machinery in addition to general foundry and machine work. The company is now ready to receive bids on roofing and siding for the new building.

The Kenworthy Engineering & Construction Company, Waterbury, Conn., has recently sold to the Cheshire Brass Company, West Cheshire, Conn., an equipment of rolling mill power transmission machinery and the Eugene P. Phillips Electrical Works, Montreal, Can., a special furnace for annealing copper work. It has also closed with the Bantam Mfg. Company, Bantam, Conn., for a tempering furnace outfit.

Chauncey G. Parker of Newark, N. J., has been appointed receiver for the American Compound Bearing Company, New York.

The property of the Stillwell-Bierce & Smith-Vaile Company, Dayton, Ohio, is to be offered for sale on the following terms: The old plant, machinery and appliances covered by the $300,000 mortgage bonds to be first offered in bulk; all of the rest of the property to be next offered in bulk, and then the property as an entirety with the good will to be next offered. There will be required a deposit of $10,000 upon bids for the partial offerings and $25,000 upon the entirety.

Power Plant Equipment.

The International Harvester Company, Chicago, is manufacturing a line of gas engines for agricultural use ranging from 1½ to about 20 horse-power. Some new mechanical features have been embodied in these engines, but the chief purpose of the company is to produce a durable engine of the greatest possible simplicity at a cost that will make its engines economical for use on farms and in small manufacturing businesses.

Proctor, Bowen & Co., Worcester, Mass., have leased the machine shop of the Allen Boiler Works in that city, where they will make a specialty of portable engines and boilers, and will manufacture shafting and do a general jobbing business.

At a meeting of the directors of the Landis Tool Company, Waynesboro, Pa., last week it was decided to erect a 250 horse-power electrical power plant at the works. The plant will then be operated entirely by electricity. An effort will be made to have the plant in operation within 90 days.

The firm of W. D. Gardner & Co., Washington, Pa., manufacturer of convertible gas and steam engines, is to incorporate as the Gardner Convertible Gas & Steam Engine Company, with a capital stock of $50,000. The company is to erect a new plant, the site for which has not yet been selected, and will do general foundry and machine work in addition to the engine business. None of the machinery has been purchased. The directors will be W. D. Gardner, George E. Lockhart, I. L. Straight, Elmer Willetts and John W. Hallam.

The Ames Bonner Company, Toledo, Ohio, brush manufacturer, will require no new machinery for its new plant other than the power equipment. It is not known yet just what will be purchased as it has not been fully decided whether a gas, electric or steam plant will be installed.

Foundries.

Essi Stannard of New Haven, Conn., announces that the business formerly conducted by Stannard & Son and recently by himself will hereafter be known as the Stannard Iron Foundry Company.

The Delaware River Steel Casting Company, Chester, Pa., now has its plant in operation and is prepared to furnish acid open hearth steel castings promptly and in accordance with specifications. The main foundry is 127 x 500 feet and contains 64,000 square feet of working surface. It is equipped with one 30-ton and two 20-ton electric cranes with auxiliary hoists, smaller electric cranes, and all other modern machinery and tools necessary in the make up of a first-class steel casting plant.

The Youngstown Foundry & Machine Company, Youngstown, Ohio, has been incorporated by S. D. L. Jackson, H. Conroy, A. L. Rowland, D. B. Cooper and J. W. Blackburn. The new concern succeeds the Youngstown Foundry & Machine Company and the Youngstown Steel Casting Company, which have been consolidated.

The Meadville Malleable Iron Company, Meadville, Pa., has elected the following officials: C. B. Dick, president; Otto

Kohler, vice-president, and S. C. McDowell, secretary and treasurer.

Montpelier Foundry & Furnace Company, Montpelier, Ohio, has increased its capital stock from $10,000 to $25,000.

Bridges and Buildings.

The property and buildings recently purchased by the North Penn Iron Company, Philadelphia, Pa., have been occupied by the company since its incorporation in 1898. The product of the plant is traveling cranes, structural steel for buildings, bridges, &c.

The business which W. J. Adam of Joliet, Ill., has been conducting for the past 25 years has been incorporated and will hereafter be known as the Adam Steel & Wire Works. The capital stock of the company is $50,000. The company makes a specialty of structural steel for prison and jail construction. The incorporators are William J. Adam, Folger Adam and Robert A. Cameron.

The Scherzer Bridge Company, Chicago, has been awarded the contract for a four-track roller lift bridge to be erected at Cos Cob, Conn., for the New York, New Haven & Hartford Railroad. The Passaic Bridge Company of Passaic, N. J., has the contract for the steel approaches to the bridge.

Fires.

The Phillips & Rangeley Railroad shops at Phillips, Maine, were destroyed by fire last week, the loss being about $10,000.

The shops of the Atchison, Topeka & Santa Fé Railroad at Cleburn, Texas, were destroyed by fire July 2, entailing a loss of about $300,000. The buildings contained machinery valued at about $150,000.

The Williamson Veneer Works, near Baltimore, Md., were destroyed by fire July 4, with a loss estimated at $50,000.

The plant of the Vehicle Equipment Company, Brooklyn, N. Y., was almost totally destroyed by fire July 5. The loss is placed at $200,000.

The blacksmith shops of the Chicago, Burlington & Quincy Railroad, Havelock, near Lincoln, Neb., were recently destroyed by fire. The loss is estimated at $75,000.

Hardware.

The Bristol Company, Waterbury, Conn., is about to erect an addition to its shops, 50 x 60 feet, and one story. It will be used to extend the general manufacturing space of the plant.

The Homer R. Bronson Company, Beacon Falls, Conn., is to erect a two-story brick addition to its factory, 30 x 100 feet. The addition will be connected with one of the present buildings by a passageway.

Kitselman Bros., Muncie, Ind., manufacturers of wire, nails, &c., have increased their capital stock to $500,000. The firm are composed of A. L., C. M., D. M., H. L. and E. F. Kitselman and Robert Miller. They own several factories in the United States and maintain large warehouses in Canada and Mexico. They will spend $25,000 in improvements at the wire fence factory and wire and nail mills at Muncie.

Miscellaneous.

The Riverside Mfg. & Supply Company, Limited, Connellsville, Pa., has been succeeded by the Riverside Metal Refining Company, Incorporated, under the laws of Pennsylvania, and the capital stock has been increased to $25,000. The plant is being completely remodeled, enlarged and equipped with most modern appliances for the business of the corporation, which will embrace the smelting, refining and manufacture of copper, brass, solders, type metals, babbitts, spelter, terne and tuyere metals, phosphor bronze and special alloys. The officers are E. T. Norton, president; William G. Marqua, secretary; John L. Gans, treasurer, and T. E. McDermott, superintendent.

The Trumbull Electric Company is building a two-story addition to its factory at Plainville, Conn.

Kimball & Hadley, needle manufacturers, Lynn, Mass., announce that they have sold their business to the United Shoe Machinery Company.

W. W. Stall, president and manager of the Factory Exchange, Boston, has leased the large brick plant at North Cambridge, Mass., formerly occupied by the Laminar Fibre Company, to Skilton, Foote & Co., Incorporated, a corporation formed for the purpose of taking over the business formerly carried on under this name as a firm and manufacturing the well-known Bunker Hill brand of pickles at Somerville for three generations past. Extensive improvements and additions are being made and the new concern will take possession at once.

The M. Hersch Iron Company was the successful bidder for all of the scrap at the plant of the Fanner Mfg. Company. There is estimated to be about 1500 tons. This plant burned down about two weeks ago.

The Buffalo, Rochester & Pittsburgh Railway Company has contracted for the equipment of all the locomotives on its system with the Dukesmith air brake release signal, which the operating department has found to be of great benefit in train service.

The Lee, Cowan & Bowen Company has been incorporated at Syracuse, N. Y., with a capitalization of $50,000 to take over the business of Lee, Cowan & Bowen, spring manufacturers, that city. The directors are Edward H. Burdick, C. H. Knapp, H. L. Stevens, F. B. Gill and Carolyn Lee.

The York Carriage Company, York, Pa., has let a contract for the erection of a plant, to take the place of that ruined by fire, to George W. Gilbert of York, Pa. The main building will be a brick structure 50 x 100 feet, four stories high, and will be completed within three months of the date of contract. The new plant will be complete in every detail of carriage making and will, so far as possible, be fire proof. The York company is rushed with orders and with its present hampered conditions has difficulty in meeting demands.

The Grozier Pipe Collar Company, Hartford, Conn., has been incorporated under Connecticut laws with an authorized capital stock of $50,000, to manufacture a patent pipe collar. The incorporators are E. B. Ricketson, G. H. Wilson and J. E. Pucci, all of Hartford. The company will not establish a plant of its own at present, but will have its pipe collar manufactured by outside parties.

The National Self-Winding Clock Company, Bristol, Conn., has been merged with the Illinois Clock Company, and the machinery of the Connecticut shop will be moved to Illinois, where, it is said, the site of the industry has not been fully determined.

The Volunteer Disc Plow Company, Chattanooga, Tenn., has incorporated to put on the market the Weeks Volunteer disk plow. The company will not install a plant for the present, but will have the plows made at the works of the Chattanooga Implement Mfg. Company and at other plants throughout the country. C. A. Raht is president; S. V. Weeks, vice-president; F. P. Llewellyn, secretary, and L. W. Llewellyn, treasurer.

The Jay Street Terminal, owned by Arbuckle Brothers, Brooklyn, N. Y., has purchased a piece of property fronting 100 feet on Bridge street, 200 feet on John street and with a depth of nearly 400 feet. Included in the purchase are three piers and a bulkhead. The property will be used for improving the facilities of the sugar refinery, but it has not yet been decided as to what the nature of the improvements will be.

The Solid Draft Rigging & Equipment Company has been incorporated at Terre Haute, Ind., with $50,000 capital stock by Elias Lewis, W. J. Woollen and T. E. Woollen.

Parkhurst Bros. & Co., Indianapolis, has been incorporated as the Parkhurst Mfg. Company, with $50,000 capital. Directors: J. M., J. W., J. H. and J. A. Parkhurst and M. E. McAlpin. The company manufactures elevators.

The H. Schminke Company has been incorporated at Evansville, Ind., to manufacture and deal in galvanized iron, tin and cornice work; capital, $5000. Directors: H. Schminke, Harry B. Schminke and Geo. F. Lomey.

Meritt & Co., Philadelphia, Pa., manufacturers of metal lockers and ornamental iron work, have purchased the plant of the Anderson Food Company, Camden, N. J., which they will equip for manufacturing their line of goods. The power plant is included in the sale, but not the machinery, the latter being retained by Mr. Anderson.

The large addition to the Spargo Wire Works, Rome, N. Y., has been completed and is in operation.

Harry Bros. Company, Dallas, Texas, manufacturer of corrugated galvanized steel tanks and cisterns, which is to build a new plant at New Orleans, La., will at first put up a building 50 x 100 feet, in which will be installed machinery from the present plant. This building will be so arranged that it can be added to at any time, and it will be operated by electricity. No new machinery is required at the present time.

A. W. Thompson on the Situation.—Alexis W. Thompson, president of the Republic Iron & Steel Company, gives his views on the present condition and outlook of the iron trade, as follows: "I am an optimist, of course; business is dull at present and will continue dull for several months, but so far as the future is concerned, everything points to extraordinary activity in the year 1905. Nothing can stop the progress of steel and iron. Consumers can hold off for a certain length of time, but not permanently. Last year we produced twice as much material as eight years ago. It would not be surprising to me if the production of pig iron in 1905 exceeded 20,000,000 tons."

The R. D. Cole Mfg. Company, Newnan, Ga., has issued a very handsome illustrated book as a souvenir of the fiftieth anniversary of the founding of the company's business. The founder, R. D. Cole, Sr., is still living, is the president of the company and is 84 years old. Mathew Cole, the vice-president, is 82 years old. The active management, however, is in the hands of the younger members of the company. The main products of the works are engines, mill work, gearing, saw mills, corn mills, boilers, stand pipes, steel trestles, tanks, bridges and steel buildings. The book gives a very interesting history of the enterprise, with pictures of the works and portraits of the officers.

The Iron and Metal Trades

The holidays have interfered with what little business there was going, and the markets generally are dull. The mill and foundry consumption usually falls off considerably during this season of the year, owing to stoppages for repairs and remodeling. At a time like the present, when consumption is generally light, these may more than offset the banking and blowing out of blast furnaces. In the Foundry branch the key to the situation is held by the Southern producers, who are at odds with the Coal miners, of whom they demand concessions in wages, The furnace companies act in a determined way, but some of the shipping collieries not identified with the Iron trade are putting backbone into the men by running subject to a final settlement on the basis of the agreement ultimately reached by the furnace interests.

An indication of the attitude of buyers is furnished by the fact that a large Pipe foundry which sold 15,000 tons of Cast Iron Pipe to Cincinnati covered only a small part of the Iron and then withdrew from the market again.

There has been a little more activity on the part of the smaller outside Open Hearth Basic Steel plants. Chicago reports one lot of 10,000 of Southern Basic sold, while in New England a similar quantity was purchased for delivery during July and August.

The Billet meeting is being held to-day. Until the whole basis of the association and its methods are changed the trade will pay very scant attention to it. How little official prices really mean is shown by the fact that consumers who have sliding scales will get their June Billets at $19, when the official price is $24.

The Plate and Structural mills are to hold their meetings to-morrow. One of the points which the latter group should take into consideration is whether there is anything serious in the imports of foreign Structural Material which have taken place, and which importers claim can be done normally, at present prices at home and abroad, for delivery at exposed points like New England, the Gulf and the Pacific Coast.

The largest contract for Structural Material recently placed is that for about 10,000 tons for the bridge at Havre de Grace. It has been divided between two large interests. There has been a reduction in the price of Black Merchant Pipe in line with last week's reduction in prices of Boiler Tubes.

On the whole, the consumption of Finished Iron and Steel in its many forms appears to continue rather light. It is an interesting question as bearing on the developments of the second half of the year what shrinkage the Rail tonnage made will show. With a capacity of fully 3,500,000 tons, the mills have thus far booked 1,500,000 tons, inclusive of orders carried over from last year. A very considerable part of this has already been rolled, and it is not believed that any very important interests will buy for the second half of the year. That leaves the Rail mills in rather a lean condition, and reacts back on Coke, Ore, Pig Iron and Steel.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

At date, one week, one month and one year previous.

	July 6, 1904.	June29, 1904.	June8, 1904.	July 8, 1903.
PIG IRON:				
Foundry Pig No. 2, Standard, Philadelphia	$14.50	$14.50	$14.50	$18.50
Foundry Pig No. 2, Southern, Cincinnati	11.75	11.75	11.75	16.25
Foundry Pig No. 2, Local, Chicago	*13.25*	13.25	13.50	18.00
Bessemer Pig, Pittsburgh	*12.25*	12.50	12.85	18.75
Gray Forge, Pittsburgh	*12.00*	12.10	12.35	18.50
Lake Superior Charcoal, Chicago	*14.50*	14.50	15.00	22.00
BILLETS, RAILS, &c.:				
Steel Billets, Pittsburgh	23.00	23.00	23.00	28.50
Steel Billets, Philadelphia	24.00	24.00	24.00	29.00
Steel Billets Chicago	24.00	24.00	24.00	29.50
Wire Rods, Pittsburgh	*28.00*	28.50	29.50	36.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	9.50	9.50	9.50	17.00
O. Steel Rails, Philadelphia	*11.00*	11.00	11.25	21.00
O. Iron Rails, Chicago	*14.00*	14.50	14.50	20.00
O. Iron Rails, Philadelphia	14.50	14.50	14.50	23.00
O. Car Wheels Chicago	*10.50*	10.50	11.50	21.50
O. Car Wheels, Philadelphia	*11.00*	11.00	12.00	21.50
Heavy Stel Scrap, Pittsburgh	*11.00*	11.00	11.50	20.00
Heavy Steel Scrap, Chicago	*9.00*	9.00	9.50	16.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.48½	1.48½	1.48½	1.75
Common Iron Bars, Chicago	*1.30*	1.30	1.38	1.65
Common Iron Bars, Pittsburgh	*1.30*	1.30	1.35	1.65
Steel Bars, Tidewater	1.49½	1.49½	1.49½	1.75
Steel Bars, Pittsburgh	1.35	1.35	1.35	1.60
Tank Plates, Tidewater	1.74½	1.74½	1.74½	1.75
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.60
Beams, Tidewater	1.74½	1.74½	1.74½	1.73½
Beams, Pittsburgh	1.60	1.60	1.60	1.60
Angles, Tidewater	1.74½	1.74½	1.74½	1.73½
Angles, Pittsburgh	1.60	1.60	1.60	1.60
Skelp, Grooved Steel, Pittsburgh	*1.32½*	1.35	1.40	1.90
Skelp, Sheared Steel, Pittsburgh	*1.32½*	1.35	1.40	1.90
Sheets, No. 27, Pittsburgh	*2.00*	2.00	2.05	2.65
Barb Wire, f.o.b. Pittsburgh	2.50	2.50	2.50	2.60
Wire Nails, f.o.b. Pittsburgh	1.90	1.90	1.90	2.00
Cut Nails, f.o.b. Pittsburgh	1.75	1.75	1.75	2.15
METALS:				
Copper, New York	*12.62½*	12.62½	12.75	14.00
Spelter, St. Louis	**4.75**	4.70	4.60	5.50
Lead, New York	*4.20*	4.20	4.25	4.12½
Lead, St. Louis	*4.07½*	4.12½	4.12½	4.02½
Tin, New York	*25.60*	25.50	26.70	27.15
Antimony, Hallett, New York	7.25	7.25	7.25	6.62½
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.64	3.64	3.64	3.99

Chicago.

FISHER BUILDING, July 6, 1904.—(*By Telegraph.*)

It is rather difficult to make a correct epitome of market conditions this week because of the fact that practically three holidays have intervened since last report and the business at the time of making this review, Tuesday evening, is an accumulation of the three idle days. Notwithstanding this accumulation of business the orders received by sellers in the various lines under review are not what might be expected. It is not fair, however, to take this as an indication of weakness in the market because orders received in this (Tuesday) morning's mail were mailed on Saturday at a time when the disposition of buyers everywhere was to wait until a definite announcement was made of the trend of prices for the third quarter of the year. Next week's report promises to be much more definite in its tone than is possible under present conditions. Southern Pig Iron has neither receded nor advanced to a marked degree, although there is less $9 Iron offered this week than there was last. The proposition to advance freight rates to the old figure has been defeated by one Southern road, which has taken upon itself to maintain the old price, and others will be forced to follow, making the going freight from Birmingham to Chicago $3.65 per ton. The old rate also applies to Racine and Milwaukee. Northern Irons are unchanged, with a disinclination on the part of the majority of furnaces both North and South to go beyond January 1 at present prices. However, there is no rule without its exceptions, and a buyer who will offer a sufficient tonnage will be able to cover himself possibly for 12 months from date at present prices. This is more true with Northern than Southern Irons, as Southern makers are refusing to ship beyond the third quarter at present, demanding 50c. to $1 per ton for fourth

quarter. There is nothing new to report in Billets. Quite a large tonnage has been placed in Rails, although the buying has been done in New York and the Western mills are only interested spectators. Structural Steel is extremely quiet, with none of the large buildings placed that are being figured on. Plates are extremely quiet, with more persistent rumors of cutting in prices in the way of rebates on the part of the members of the Plate Association. Not one of these rumors, however, has been proved, and it is entirely possible that prices have been maintained in spite of the small talk to the contrary. Meanwhile there is no doubt of the fact that two or three mills making Plates 60 inches and narrower have shaded the pool prices $1, $2 and $3 per ton. Sheets are in active demand and uncertain in supply, the supply being curtailed by the closing down of many mills, due to the midsummer house cleaning and readjustment of wages. Merchant Pipe has been reduced from one to two points on Black, while Galvanized, instead of selling at 1c. per lb. above Black, is now placed at 1½c. per lb. in the smaller diameters. In other words, the price on such Black Pipe has been reduced one point of discount and the price of Galvanized advanced four points. This is taken to mean that threatened competition is less able to cut a figure in the Galvanized than in the Black Iron and Steel Pipe market. Boiler Tubes are unchanged in prices, and thus far no word has been received of a reduction in Seamless Steel Tubes. The city of Cincinnati placed its order for about 15,000 tons of Cast Iron Pipe with the leading producer, and the city of San Diego, Cal., is in the market for about 2500 tons. Nothing has been done in the Winnipeg, Man., or Erie, Pa., contracts as far as is ascertainable to-day. The tone of Old Materials is practically unchanged, with an increasing tendency on the part of speculative dealers to load up their yards with materials at the present low prices. The Coke situation is unchanged and Wire products are experiencing their usual midsummer dullness.

Pig Iron.—Conditions are only slightly changed from last week, the difference being that there are less Southern furnaces now which are willing to supply Iron at the $9 basis, Birmingham, than there were a week ago. The Republic Iron & Steel Company, which for a time was willing to accept the $9 basis for prompt shipment, has sold all its spot Iron at that price, and is now holding for $9.50 for its Pioneer Iron for future delivery. The Tennessee Company is consistently holding out for $9.50 for No. 2 and Basic, and gradually the list of furnaces which were willing to take $9 for spot Iron is growing smaller and smaller. Northern Iron is unchanged in its general aspect, with $10.25, Chicago, about the minimum for No. 2 Iron delivered at consumers' tracks. The Grand Crossing Tack Company is said to have bought last week about 10,000 tons of Basic Iron at about the basis of $9, Birmingham, or $12.65, Chicago. This order was placed with some furnaces north of the Ohio River, which thus far have withheld the facts, and the price may have been a little above or a little below the $9, Birmingham, basis. In line with our reports the last two weeks it now develops that the railroads have been unable to restore their old rate of $3.85 from Birmingham. This is due to the fact that the L. & N. road, which carries the Iron from Birmingham to the Ohio River gateway, has taken the responsibility of naming the old price. It will be remembered that the reduction from $3.85 to $3.65 from Birmingham to Chicago was made by roads north of the Ohio River, which reduced their portion from $1.60 to $1.40 per ton. But now that the roads north of the Ohio River resolved to restore the old rate of $1.60, the L. & N. steps in and says to the Birmingham furnaces: "We will carry your Iron at the old price and take our chances." The L. & N., it develops, has taken practically no chances, as one road after another north of the Ohio has consented to accept tonnages for Chicago, Racine and Milwaukee, delivered, at the old rate of $1.40 from the Ohio River to Chicago instead of $1.60. This strategic move on the part of the L. & N. has given to that road the bulk of the Pig Iron traffic from Birmingham northward, and by shipping around from one carrier to another north of the Ohio it has been able to place all the freight that it took at the reduced rate without a cent of loss to itself. It is always difficult to diagnose the Northern Pig Iron market because there are only two leading factors of that product in this market, and they are apparently uniform in their quotations. These factors state that Northern Iron is at $13.25, Chicago, as its minimum for very large lots, and that the prices run from there up to $13.75. But it is understood that the higher price is for deliveries extending beyond January 1 next. However, if a buyer wished to place a tonnage of any magnitude extending from the present time until next July at $13.25, Chicago, he would have no difficulty in making a contract with either of the two leading Northern producers for 12 months' delivery. No contracts of any magnitude seem to have been placed in this market within the last week, though there are several that are being figured on. We therefore repeat last week's prices without change, with the understanding that the prices quoted are in the main for delivery within this quarter, and that deliveries after September will be held at a higher price. We quote as follows:

Lake Superior Charcoal	$14.50 to $15.50
Northern Coke Foundry, No. 1	13.75 to 14.00
Northern Coke Foundry, No. 2	13.25 to 13.50
Northern Coke Foundry, No. 3	13.00 to 13.25
Northern Scotch, No. 1	14.00 to 14.25
Ohio Strong Softeners, No. 1	15.05 to 15.30
Ohio Strong Softeners, No. 2	14.55 to 14.80
Southern Silvery, according to Silicon	14.15 to 15.15
Southern Coke, No. 1	13.15 to 13.40
Southern Coke, No. 2	12.65 to 13.15
Southern Coke, No. 3	12.40 to 12.65
Southern Coke, No. 4	11.65 to 12.15
Southern Coke, No. 1 Soft	13.15 to 13.40
Southern Coke, No. 2 Soft	12.65 to 13.15
Southern Gray Forge	11.65 to 11.90
Southern Mottled and White	11.65 to 11.90
Malleable Bessemer	13.75 to 14.00
Standard Bessemer	14.80 to 15.05
Jackson County and Kentucky Silvery, 6 to 10 per cent. Silicon	16.30 to 18.30
Alabama Basic	.... to 13.15
Virginia Basic	13.85 to 14.10

Billets.—Nothing new has developed in the Billet situation. Because there has not been sufficient demand to create a market a small tonnage is being placed from day to day by hand to mouth buyers, and even they are able to secure in many instances lower than the pool price of $24, Chicago, for 4 x 4 and larger. The International Harvester Company, while not an active factor in the Billet market, is placing desirable orders for Billets from time to time at a reduction sufficiently inviting to close the sale.

Rails and Track Supplies.—There is much discussion in this market about the 60,000 tons placed by the Harriman roads. It is believed here that a very large proportion of this tonnage went to the Tennessee Company, and that small orders were doled out to the Illinois Steel Company, the Carnegie Steel Company and the Lackawanna Steel Company by way of a sop to prevent these shippers from discriminating against the Harriman roads in the way of their freight consignments, but this supposition is not altogether confirmed by the roads in question. The Alton placed less than 1000 tons with the Illinois Steel Company, but aside from these orders, the Rail business has been quiet. There has been regular routine business done in Standard Sections for repair purposes, and some small orders for electric roads, part of which are Standard Sections and part in the Light Rail class. In general, business may be said to be extremely quiet and prices are as follows: Standard Sections are unchanged on the $28 basis, while Light Section Rails range from $22.50 to $25 per gross ton. Angle Bars are unchanged at 1.35c. to 1.40c. Spikes are lower, being now quoted at 1.65c. to 1.70c. in car lots from mill and as high as 1.85c. in small lots from store. Track Bolts are selling at 2.20c. to 2.25c., base, from mill, with Square Nuts, and 10c. to 15c. extra for Hexagon Nuts, with an advance of about 15c. for shipment from store.

Structural Material.—Of the large buildings in Chicago which are to be let none has been placed at this time. But there is every probability that some buildings of considerable size will be placed in a very short time. There are 15,000 tons to be placed, and it is only a question of a few days until the contracts are finally concluded. In line with the experience of the past few months it is more than probable that the American Bridge Company, a department of the United States Steel Corporation, will secure the bulk of the business. Prices are unchanged, as follows: I-Beams and Channels up to and including 15 inches and Angles 3 inches on one leg and larger, 1.76½c., Chicago; Tees, $1 per ton extra. Store prices on Structurals are as follows: Angles, Beams, Channels and Zees, base sizes, 2c. to 2.10c.; Tees, 2.05c. to 2.15c., either random lengths or cut to lengths 5 feet and over.

Plates—Have been quieter in the last two weeks than they have been at any time for several years. A cut in price might stimulate a slightly increased tonnage, but it is very doubtful whether the increase in business would be in proportion to the decrease in profits if a cut were made. Meanwhile the small mills are reaping a harvest in the production and sale of Plates, 60 inches and narrower, at 50c. to $1 a ton less than association prices, as the association price of 1.60c., Pittsburgh, leaves a good margin of profit to the producer of Plates under present conditions. Association prices on Plates, No. 9 and heavier, are unchanged. This means 1.60c., Pittsburgh, for ½ inch and heavier, 1.70c. for ⅜ inch, 1.75c. for No. 8, 1.85c. for No. 9, although it is understood that No. 9 is being shaded very considerably by association mills that are furnishing what they call heavy No. 10 at much lower prices. Store price on all gauges from No. 10 to the heaviest is 2c. to 2.10c., f.o.b. warehouse, with the uusal extras for wide widths and special qualities.

Sheets.—The Inland Steel Company has closed down for an indefinite period, which will probably mean all the month of July. A large proportion of the Sheet mills that supply the Chicago market are in the same position, and for that reason Sheets are rather firmer than they have been. We repeat last week's prices, with the explanation that some of the mills that were making the lower prices named are out of business as far as immediate delivery is concerned, and that the general tendency is to ask for higher prices after the usual midsummer shutdown is over. We quote: One Pass Cold Rolled Blue Annealed, Nos. 9 and 10, 1.76½c.; Nos. 11

and 12, 1.86½c.; Nos. 13 and 14, 1.91½c.; Nos. 15 and 16, 2.01½c. On One Pass Cold Rolled Box Annealed Sheets, 18 gauge and lighter, the following prices seem to prevail: Nos. 18 and 20, 2.06½c. to 2.11½c.; Nos. 22 and 24, 2.11½c. to 2.16½c.; No. 26, 2.16½c. to 2.21½c.; No. 27, 2.21½c. to 2.26½c.; No. 28, 2.31½c. to 2.36½c.; No. 29, 2.46½c. to 2.51½c.; No. 30, 2.56½c. to 2.61½c. Store prices on Sheets are as follows: No. 10 and heavier, 2c. to 2.10c.; No. 12, 2.05c. to 2.15c.; No. 14, 2.10c. to 2.20c.; No. 16, 2.20c. to 2.30c.; No. 18, 2.30c. to 2.40c.; No. 20, 2.30c. to 2.40c.; No. 22, 2.35c. to 2.45c.; No. 24, 2.40c. to 2.50c.; No. 26, 2.50c. to 2.60c.; No. 27, 2.60c. to 2.70c.; No. 28, 2.70c. to 2.80c.; No. 29, 2.85c. to 2.95c. Galvanized Sheets are extremely weak, the ruling discounts being 80 and 5 to 80 and 10, Pittsburgh, for carload shipments from mill, and 75, 10 and 5 to 80 per cent. discount for smaller lots from store, Chicago.

Bars.—We repeat last week's quotation of 1.30c. to 1.35c., Chicago, for carload orders of Iron Bars, with the caution that the small buyer should not hope to secure his Bars at less than 1.35c., base, half extras, in carload lots, Chicago, as the lower price is made only in exceptional instances. The general tendency of the Bar Iron market is upward, as the leading producers have booked sufficient business to make them practically independent of current requirements. Some producers claim that they are selling Bar Iron on the basis of 1.40c., and that higher than that is bid for delivery into next year. Steel Bars are unchanged officially at 1.35c., Pittsburgh, or 1.51½c., Chicago, though sales of considerable magnitude have been made at from 1.40c. to 1.45c., base, half extras, Chicago, in carload lots by the International Harvester Company and other independents for prompt delivery. Nominally, $1 per ton extra is charged for Open Hearth Bars, though this extra is not always enforced. Hoops are unchanged nominally at least; 1.55c. rates, Pittsburgh, full extras, or 1.71½c., Chicago, in carload lots. Store prices are unchanged as follows: Iron Bars, 1.75c., base, full extras; Steel Bars, 1.70c. to 1.80c., base, half extras; Hoops, 2.10c. rates, full extras.

Merchant Steel.—The optimistic spirit that has made Chicago is manifested in the percentage of orders for future delivery of Merchant Steel that are placed with manufacturers of Merchant and Agricultural Steel. Crop reports, as we have repeatedly stated, are favorable, and there is every probability that the demand for fall consumption will be excellent. For this reason prices have not been reduced in line with some other reductions that have been made recently, and in the face of the midsummer depression the general tendency is upward. We quote last week's prices, as follows: Open Hearth Spring Steel to the general trade, 2c. to 2.25c.; Smooth Finished Machinery Steel, 1.76½c. to 1.81½c.; Smooth Finished Tire, 1.71½c. to 1.76½c.; Sleigh Shoe, flat, 1.56½c. to 1.61½c.; Sleigh Shoe, concave and convex, 1.66½c. to 1.71½c.; Cutter Shoe, 2.25c. to 2.35c.; Toe Calk Steel, 2.06½c. to 2.11½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 13c. and up; Shafting at 52 per cent. in car lots and 47 per cent. in less than car lots.

Merchant Pipe.—The leading producer has seen fit to make another reduction in Iron and Steel Black Merchant Pipe in line with last week's reduction on Boiler Tubes, both reductions having been made, it is understood, to present all possible obstacles to the success of the new factor that is to arise at Zanesville, Ohio. At the same time they have advanced their prices on Galvanized Pipe, making the difference between Black and Galvanized 1½c. per lb., or 15 points in discount, on many sizes, as against 10 points on the old scale. These new prices on Pipe are as follows for delivery to consumers in carload lots, Chicago, the Chicago price being exactly the addition of 16½c. freight in carload lots to the Pittsburgh price:

	Steel Pipe.		Guar. Wr'ght Iron.	
	Black. Per cent.	Galv. Per cent.	Black. Per cent.	Galv. Per cent.
⅛ to ⅜ inch	68.35	53.35	67.35	52.35
½ inch	71.35	61.35	70.35	60.35
¾ to 3 inches	76.85	66.85	75.85	65.85
3½ to 6 inches	75.35	65.35	74.35	64.35
7 to 12 inches	70.85	55.35	69.85	54.35

Boiler Tubes.—As far as can be ascertained the manufacturers of Seamless Steel Tubes have not yet decided to make reductions in their product in proportion to the reduction in the price of Lap Welded Steel and Iron Tubes that was announced last week. Last week's reduction was made because of trade conditions, and possibly because of the announcement that the Mark Mfg. Company was about to begin the production of Boiler Tubes at its new Zanesville plant. We repeat prices, therefore, without change, as follows:

	Steel.	Iron.	Seamless Steel.
1 to 1¼ inches	46.35	41.35	52.35
1¾ to 2¼ inches	58.35	41.35	40.35
2½ inches	60.35	46.35	43.35
2¾ to 5 inches	66.35	53.35	up to 4 in. 50.85
6 to 13 inches	58.35	41.35	....

In line with the reduction on Boiler Tubes for shipment from mill by the leading producer, the Chicago warehousemen have made reduction in their prices from store amounting to about 2½ per cent. The new discounts are as follows:

	Steel.	Iron.	Seamless Steel.
1 to 1½ inches	42½	37½	40
1¾ to 2½ inches	52½	35	37½
2½ inches	55	37½	40
2¾ to 5 inches	62½	47½	47½
6 inches and larger	52½	35	..

Cast Iron Pipe.—The United States Cast Iron Pipe & Foundry Company secured the contract for about 15,000 tons of Pipe for the city of Cincinnati at somewhere near the basis of $24, Chicago, for 6-inch Pipe, although the price is not made public at this end of the route. San Diego, Cal., is in the market for 2500 tons of Water Pipe. The Winnipeg, Man., 500-ton contract will not be closed till July 18, the presumption being that Canadian producers will be given the preference if such a thing is possible. The contract that is being figured on aggregating about 4000 tons of Cast Pipe for Erie, Pa., has been side tracked until the authorities there thoroughly investigate the merits of Steel Riveted Pipe, which is offered them at a very great reduction in price compared with Cast Pipe. Kansas City, Mo., is also considering bids on a considerable tonnage of Pipe, although no definite announcement has yet been made as to the letting. Prices are nominally unchanged, but weak, at $25.50 the maximum for 4-inch Water Pipe and $24.50 for 6-inch and heavier, and $1 extra for Gas Pipe. Better prices than these will be named on lots of several hundred tons and above.

Old Materials.—The Chicago & Northwestern road sold about 1000 tons of material last week, and got pretty fair prices for all of it, the bulk being taken by speculators who believe that it is a good time to buy and lay up stocks for midwinter sale. There are a large number of dealers in this class of material who make an annual practice of buying during the summer slack season and storing in their yards until the heavy snowfalls of winter shall have reduced the supply to a point where it is inadequate to meet the demand. This is an elementary form of speculation which has made fortunes for many people, and the buying just now is if anything more active than it has been in previous years because prices have gone lower now than for some time. These shrewd speculators are willing to stake their money on the chance that prices on Scrap materials will be very much higher than they are now and for many months to come, and it is only a question of time until they can dispose of their present purchases at a handsome profit. Notwithstanding this speculative buying, which if conducted on a large scale would advance prices, we are forced to reduce our prices 50c. per ton on Old Iron and Steel Rails, but we increase prices on Machine Shop Turnings 25c. per ton, leaving the balance of the list the same as last week. We quote as follows, per gross ton, Chicago, carload lots:

Old Iron Rails	$14.00 to $14.50
Old Steel Rails, 4 feet and over	10.00 to 10.50
Old Steel Rails, less than 4 feet	9.50 to 10.00
Heavy Relaying Rails, subject to inspection	21.00 to 22.00
Heavy Relaying Rails, for side tracks	18.00 to 20.00
Old Car Wheels	10.50 to 11.00
Heavy Melting Steel Scrap	9.00 to 9.50
Mixed Steel	8.00 to 8.50

The following quotations are per net ton:

Iron Fish Plates	$12.00 to $12.50
Iron Car Axles	15.00 to 15.50
Steel Car Axles	13.50 to 14.00
No. 1 Railroad Wrought	10.50 to 11.00
No. 2 Railroad Wrought	9.50 to 10.00
Shafting	12.50 to 13.00
No. 1 Dealers' Forge	8.00 to 8.50
Wrought Pipe and Flues	7.00 to 7.25
Iron Axle Turnings	7.00 to 7.25
Soft Steel Axle Turnings	7.00 to 7.25
Machine Shop Turnings	6.50 to 7.00
Cast Borings	3.50 to 4.00
Mixed Borings, &c	3.50 to 4.00
No. 1 Mill	6.00 to 6.50
Country Sheet	5.00 to 5.50
No. 1 Boilers, cut to Sheets and Rings	7.00 to 7.50
Heavy Cast Scrap	8.75 to 9.25
Stove Plate and Light Cast Scrap	7.50 to 8.00
Railroad Malleable	8.25 to 8.75
Agricultural Malleable	7.75 to 8.00

Metals.—The market is dull. Copper is unchanged in price, Casting being held at 12¾c. and Lake at 13c. Pig Tin has declined ¼c. and is now quoted at 26¾c. to 27c. Pig Lead is without change at 4.20c. for 50-ton lots, 4.30c. for car lots and 4.50c. for less than car lots. Spelter has been reduced 0.05c. and is sold at 4.80c. to 4.90c. for car lots and 5.10c. to 5.25c. for small lots. Sheet Zinc is unchanged at 5.90c. for car lots of 600-lb. casks and 6.15c. to 6.20c. for less than car lots. Old Metals are unchanged in price, as follows: Copper Wire and Heavy, 10¾c. to 10⅞c.; Copper Bottoms, 9¾c.; Copper Clips, 10½c.; Red Brass, 9⅝c.; Red Brass Borings, 7¾c.; Yellow Brass, Heavy, 7½c.; Yellow Brass Borings, 6c.; Light Brass, 5⅜c.; Tea Lead, 3½c.; Zinc, 3.75c.; Pewter, No. 1, 16½c.; Block Tin Pipe, 21c.

Coke.—There is no material change in the Coke situation, the Connellsville ovens asking $2 per ton, f.o.b. Connellsville district, and getting it in some instances. Some Connellsville Coke, however, is going as low as $1.75, the majority of the lower priced material being shipped from the Klondike region. These prices also prevail practically from the New River and Pocahontas regions, while the Wise County, Va., ovens, including the Stonega, are offer-

ing at practically the same prices with the advantages of a freight rate 40c. per ton less. Freight rates are as follows: From Connellsville, New River and Pocahontas ovens, $2.65; from Stonega and other Wise County ovens, $2.25.

Philadelphia.

FORREST BUILDING, July 5, 1904.

The Iron and Steel market continues inactive. The national holiday has broken up the week to a considerable extent, and this, together with the usual cessation of business at this time owing to semiannual stock taking and the shutdown of mills for repairs, has resulted in the almost total absence of new business. Inquiries are few, and are mostly for small quantities of material sufficient only for immediate requirements. Whether consumers can refrain from taking on stock for a much longer period is questionable, as they appear to have got pretty well toward the end of their supply. Business, however, is extremely dull, and the prospect for an early improvement is not the most assuring. Manufacturing interests in Iron and Steel are very quiet and do not show any tendency toward immediate recovery; on the other hand, the continual curtailment of expenses and the reduction of working forces at many plants would appear to indicate a further decline in their business.

Pig Iron.—Before the holiday there were some round sales, including one lot of 5000 tons of Forge. Since then, however, little has been done. Buyers are inclined to withhold their requirements until after the semiannual stock taking. Some of the more prominent consuming interests are inclined to expect a further contraction of business, and future Pig Iron requirements therefore would be diminished. Makers of Pig Iron say they have reached the limit of concessions, and rather than sell Iron at a loss their furnaces will be blown out. With the almost total absence of demand, there is no quotable change in prices, which are about as follows for Philadelphia and nearby deliveries:

No. 1 X Foundry	$15.00 to $15.50
No. 2 X Foundry	14.50 to 14.75
No. 2 Plain	13.75 to 14.00
Alabama No. 2, rail shipment	13.50 to 13.75
Alabama No. 2, on dock	12.75 to 13.25
Standard Gray Forge	13.25 to 13.50
Ordinary Gray Forge	12.75 to 13.00
Basic	13.15 to 13.35

Steel.—The demand for Steel continues inactive and but little business has been done. Price remains at about $24 for prompt deliveries.

Plates.—There has been no improvement in the demand. Orders fluctuate, some days manufacturers having a good number of orders, while on others they are very light. The total tonnage, however, is small, and mills are not working up to much more than half their capacities. Prices are unchanged and are as follows:

	Carloads. Cents.	Part carloads. Cents.
Tank Steel, ¼-inch and heavier	1.73½	1.78½
Tank Steel, 3-16-inch	1.83½	1.88½
Tank Steel, Nos. 7 and 8, B. W. G.	1.88½	1.93½
Tank Steel, Nos. 9 and 10, B. W. G.	1.98½	2.03½
Flange or Boiler Steel	1.83½	1.88½
Commercial Fire Box Steel	1.93½	1.98½
Still Bottom Steel	2.03½	2.08½
Locomotive Fire Box Steel	2.23½	2.28½
Plates over 100 to 110 inches	.05 per lb.	extra
Plates over 110 to 115 inches	.10	"
Plates over 115 to 120 inches	.15	"
Plates over 120 to 125 inches	.25	"
Plates over 125 to 130 inches	.50	"
Plates over 130 inches	1.00	"
All sketches (excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10	"
Complete Circles	.20	"

Shell grade of Steel abandoned.

Structural Material.—There is no improvement in this line and conditions remain much the same. Immediate business, owing to the holiday and shutdown at mills, is light. Prices are unchanged as follows: Beams, Channels and Angles, 1.73½c. to 1.85c., according to specifications, and small Angles, 1.50c. to 1.55c.

Bars.—The demand is weak and unchanged. Consumption has decreased and mills in most cases are shut down for the midsummer repairs. Stocks are said to be light, however, which may lead to renewal orders. Prices are unchanged at 1.48½c. as a minimum for both Iron and Steel Bars and 1.52½c. or over for the best makes.

Sheets.—There has been a good demand, and mills have been running pretty full in order to make prompt deliveries. The usual shutdown for repairs is now being made, and if orders accumulate sufficiently mills will be started up again at an early date.

Old Material.—There has been practically no demand during the past week and prices are therefore unchanged. Bids and offers for deliveries in buyers' yards are about as follows:

No. 2 Forge Fire Scrap	$9.50 to $10.00
No. 2 Forge Fire Scrap (Ordinary)	8.00 to 8.50
Wrought Turnings	8.00 to 8.50
Axle Turnings, Choice Heavy	9.00 to 9.50
Cast Borings	6.25 to 6.50
Stove Plate	9.00 to 9.50
Wrought Iron Pipe	9.50 to 10.50
No. 1 Steel Scrap	11.00 to 11.50
Low Phosphorus Scrap	15.00 to 16.00
Old Steel Axles	15.00 to 16.00
Old Iron Rails	14.50 to 15.00
Old Iron Axles	to 17.00
Old Car Wheels	11.00 to 11.50
Choice Scrap, R. R. No. 1 Wrought	12.50 to 13.00
Machinery Scrap	11.00 to 12.00

Cincinnati.

FIFTH AND MAIN STS., July 6, 1904.—(*By Telegraph.*)

Pig Iron.—The usual midsummer period of dullness is upon us, making itself felt in the Pig Iron market. Inquiry is fairly good, with prices in about the same condition as last week. Agents report quite a number of small orders, but nothing of any considerable tonnage is in sight. A great many consumers appear to be on the verge of placing their orders for the last half, but seem inclined to temporarily postpone, hoping for lower prices. Consumption is no doubt growing less, and this fact, taken in connection with the coal miners' strike in the Birmingham district, will lead to the blowing out of a number of Southern furnaces in the near future. Stocks in consumers' yards are decidedly low, and what small tonnage has recently changed hands has been for immediate necessities only. Northern Iron is weak, due no doubt to the fact that many furnaces are preparing to go out of blast and make necessary repairs. The United States Cast Iron Pipe Company, which has been in the market for considerable tonnage, is understood to have bought a few thousand tons for present consumption and withdrawn all further inquiries. Foundry and mill productions seem to be fairly active, but the market, taken as a whole, is very uncertain and unsatisfactory. Freight rates from Hanging Rock district to Cincinnati, $1.15, and from Birmingham, $2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$12.25 to $12.50
Southern Coke, No. 2	11.75 to 12.00
Southern Coke, No. 3	11.25 to 11.50
Southern Coke, No. 4	11.00 to 11.25
Southern Coke, No. 1 Soft	12.25 to 12.50
Southern Coke, No. 2 Soft	11.75 to 12.00
Southern Coke, Gray Forge	10.75 to 11.00
Southern Coke, Mottled	10.50 to 10.75
Ohio Silvery, No. 1	15.65 to 16.15
Lake Superior Coke, No. 1	13.15 to 13.65
Lake Superior Coke, No. 2	12.65 to 13.15
Lake Superior Coke, No. 3	12.15 to 12.65
Car Wheel and Malleable Irons.	
Standard Southern Car Wheel	$16.25 to $16.75
Lake Superior Car Wheel and Malleable	15.80 to 16.30

Coke.—The Coke market is in a very weak and unstable condition. Demand is light and sales made are in small lots. The prevailing quotations on Connellsville brands range from $1.75 to $2 at oven for 72-hour.

Plates and Bars.—Structural Iron, while showing considerable strength and activity, is far below its normal condition at this season of the year. Plates and Bars have not undergone any change for the better and are very quiet. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.40c., with half extras; the same in smaller lots, 1.70c., with full extras; Steel Bars, in carload lots, 1.48c., with half extras; the same in smaller lots, 1.80c., with full extras; Base Angles, 1.73c., in carload lots; Beams and Channels in carload lots, 1.73c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 2c.; Sheets, 16-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; 14-gauge, in carload lots, 1.95c.; in smaller lots, 2.50c.; Steel Tire, ¾ x 3-16 and heavier, 1.68c. in carload lots.

Old Material.—From the small number of sales of this class of Material it is almost impossible to establish prices. Dealers as a whole are complaining of almost the entire absence of trade. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, $11 to $11.50 per net ton; No. 1 Cast Scrap, $9.25 per net ton; Iron Rails, $14.50 per gross ton; Steel Rails, rolling mill lengths, $11 to $11.50 per gross ton; Iron Axles, $15 per net ton; Car Wheels, $11 to $11.50 per gross ton; Heavy Melting Scrap, $11.50 per gross ton; Low Phosphorus Scrap, $11.50 to $12 per gross ton.

Birmingham.

(*By Telegraph.*)

BIRMINGHAM, ALA., July 5, 1904.

The Iron market, so far as prices are concerned, is as yet unstable, with a leaning to higher prices on the part of the furnace interests. The majority are asking on the basis of $9.50 for No. 2 Foundry. Some are 25c. and some 50c. above this limit. Furnaces have been closing down. The furnace plant of the Tennessee Coal & Iron Company, at Bessemer, consisting of five stacks, has been banked, while its plant at Ensley City is running on Basic Iron, which will be utilized in the Steel mill. Practically, the company is out of the market on current make of Foundry Iron, having eight furnaces closed down, with more to follow. Other interests have closed some, which will be added to later in the week. It is estimated that by the end of the week 15

furnaces will be banked. Some are running now to use up odds and ends of material. No settlement between the coal miners and the operators has yet been arranged, nor is there any in sight concerning the wage scale. The commercial operators, as a rule, have signed a wage scale temporarily based on that of last year, but with one exception the furnace interests are contending for their demands for a reduction of the wage scale. Some sales of Coke have been made by the Stonega district in Southwest Virginia to this district, costing buyers about $2.50. The termination of the strike is as yet a matter of pure speculation. It cannot, so far, be predicted with any assurance of positiveness, and the trade is simply at sea as to the results to follow from existing conditions.

Cleveland.

CLEVELAND, OHIO, July 5, 1904.

Iron Ore.—Sales of Ore have not increased to any considerable extent. Buyers are waiting to see what will come out of the competition between the Ore producers, and will not buy until they are sure of getting rock bottom. Most of those who are holding off have enough Ore to last them through for a month or so, and are assured of getting what Ore they will need later on from the fact that several of the Ore producers are shipping unsold Ore down the lakes, depending upon finding a purchaser when they have the material on the Lake Erie docks. This situation is causing some of the weakness which is now seen in the Ore situation. The railroads, owning the docks, are insisting upon the Ore producers moving their material, thus forcing the Ore on the market at a time when it is not wanted. What seemed to be minimum prices a week or ten days ago are now recognized as possibly the accepted basis for the market, as follows: Bessemer old range, $3.25, f.o.b. Lake Erie ports; Bessemer Mesaba, $3; non-Bessemer old range, $2.50, and non-Bessemer Mesaba, $2.40. These prices are, of course, for the base quality on the various Ores quoted. Those falling short of the base quality are charged for accordingly. There is some talk of non-Bessemer Mesabas having been sold at $2.25, but this seems to be without foundation.

Pig Iron.—The market has been enlivened during the past week by the appearance of some inquiries for delivery running through the next six months. The prospective tonnage is not particularly heavy and will not demand that any furnaces be started anew. The prices quoted as likely to prevail during the ensuing six months are about identical with those which are now being paid on what little current business is being done. Spot buying has been so light that many furnaces in this territory have gone out of blast during the past week and others are planning to go out of blast soon. No. 2 Foundry Iron is now quoted at $12 in the Valleys. The market for Bessemer and Basic is dead for the time being. A few of the foundrymen have been covering their needs for Coke by long term contracts. Most of them have been content to buy for three months, while others have covered for the half year. The prices are holding about as they were. The market seems to be fairly steady at current prices, some of the ovens suspending activity until market conditions improve. Current quotations are $2 to $2.10 for 72-hour Foundry Coke and $1.50 to $1.60 at the oven for furnace Coke. We quote Pig Iron prices, f.o.b. Cleveland, as follows:

Northern Coke, No. 1 Foundry	$13.50 to $13.75
Northern Coke, No. 2 Foundry	13.00 to 13.25
Northern Coke, No. 3 Foundry	12.50 to 12.75
Southern Coke, No. 1 Foundry	13.25 to 13.60
Southern Coke, No. 2 Foundry	12.85 to 13.10
Southern Coke, No. 1 Soft	13.35 to 13.60
Southern Coke, No. 2 Soft	12.85 to 13.10
Jackson County, 8 per cent. Silicon	.... to 16.45
Hanging Rock Charcoal, No. 1	.... to 23.45
Southern Charcoal, No. 1	.... to 17.85
Lake Superior Charcoal	15.50 to 16.00

Finished Iron and Steel.—Conditions are almost identical with what they were, except that in some instances the smaller mills have been making inroads upon the business of the larger concerns, with the result that the competition is being met. The Bar situation has been cleared up by the suspension of operation by most of the smaller mills. These have found that there is not enough business to keep them going, and, having a difference with their workmen, are avoiding the issue by closing the mills for an indefinite period. The substitution of Bar Steel for Bar Iron has been more general lately. There has been a little better buying of Structural Shapes, but this has been mostly current business and has not meant any material improvement in the market. In Sheets there has been a tendency toward lower prices through the operations of the smaller mills. The base price has dropped in some instances as low as 2c. for No. 27 Black Sheets in car lots at the mills, while the general average of quotations has been as formerly, at 2.10c. for the same gauge. The price out of stock is still 2.50c. for No. 27 Black Sheets. Nothing of importance has been done in this territory in Plates or Rails. Some Billets have been sold at $22 to $22.50, Cleveland. There is a fair call for Hoops and Bands.

Old Material.—The market has been almost purely a speculative one for the past week. A superabundance of material is awaiting a purchaser, but the buyers do not seem to be forthcoming. The demand being so light, all sales now made are at a sacrifice. The following shows about the list at which the various grades are now being handled, all gross tons: Old Steel Rails, $12; Old Car Wheels, $11 to $12; Heavy Melting Steel, $11. All net tons: Cast Borings, $4 to $4.50; No. 1 Busheling, $10 to $10.50; No. 1 Railroad Wrought, $11.50 to $12; Wrought Turnings, $6.50 to $7; Iron Car Axles (nominal), $16 to $17; No. 1 Cast, $10.50 to $11; Stove Plate, $7 to $7.50.

Pittsburgh.

PARK BUILDING, July 6, 1904.—(*By Telegraph.*)

Pig Iron.—Prices of Pig Iron have reached such a low point that consumers are taking more interest in the market, and there are more inquiries out than for some time. Output is being steadily reduced, and this ought to help the market and prevent heavy stocks from piling up. In the Pittsburgh district 13 furnaces were out of blast on July 1, eight of these belonging to the Carnegie Steel Company. The price of Standard Bessemer Iron is about $11.50, Valley, or $12.35, Pittsburgh, but there have been one or two round sales at $11.40, Valley, or $12.25, Pittsburgh, but on a firm offer this might be shaded a few cents a ton. Northern No. 2 Foundry is fairly firm at $11.75, Valley, or $12.60, Pittsburgh. But on a firm offer and for prompt shipment $12.50, Pittsburgh, could be done. Northern Forge Iron is $11.15, Valley, or $12, Pittsburgh, and we note a sale of 750 tons at that price. The output of Pig Iron in July will show a very heavy falling off as compared with June.

Steel.—It is now reported that the official price of Billets may be reduced to $21 at the meeting to be held in New York to-morrow. The average price of Bessemer Iron, f.o.b. Pittsburgh, for June is expected to figure out about $12.50, Pittsburgh. Consumers of Billets who have sliding scale contracts based on the price of Pig Iron will pay for their June Steel about $19 for ordinary carbons and slightly higher price for high carbons. Several small sales of Sheet Bars are reported at the official price of $24, Pittsburgh.

(*By Mail.*)

Aside from a material reduction in the smaller sizes of Merchant Pipe made by the leading interest under date of July 1, and later followed by the independent mills, there has been no change in prices in Iron and Steel products since our last report. The general tone of the market, however, is weak, and there is no incentive on the part of buyers to carry stocks. In regard to prices on Raw Materials, such as Ore, Coke, Pig Iron and Scrap, it would seem that they have about reached bottom, which is borne out by the fact that producers of Coke and Pig Iron are unwilling to make contracts ahead at present low prices, but are disposed to shut down Coke ovens and blast furnaces rather than make contracts for a long time ahead at present low prices. With the best Connellsville Furnace Coke selling at $1.40 a ton at oven, and Bessemer Pig Iron at $11.50 a ton at furnace, there is no profit in either to the producer, and he is probably better off without business. The Scrap dealers have about decided that it is folly to give away Scrap, and they are refusing to sell at the low prices offered by buyers. This policy on the part of producers will undoubtedly have a good effect upon the market, and may account to some extent for the better feeling which prevails, but which up to this time is sentimental only. The situation is likely to continue about as it is during July and August, but a material improvement in tonnage is confidently expected early in September. The shutdown movement among the blast furnaces is still under way, and this week four or five Valley stacks will go out. A large number of finishing mills will also close for the greater part of this month for inventory and needed repairs, and the taking out of the market of so much material will also have a good effect. The Rail, Billet, Plate and Beam associations meet in New York this week, and the action taken by these organizations as regards prices is awaited with much interest.

The week has been very quiet in the Pig Iron trade, Bessemer Pig ruling at about $11.50, Valley, or $12.35, Pittsburgh. Not enough tonnage is being placed to test the market. Northern No. 2 Foundry is held at $11.65 to $11.75, Valley, or $12.50 to $12.60, Pittsburgh. As noted last week, Basic Iron has sold at $11.40, Valley, or $12.25, Pittsburgh, but it is reported that this low price has since been shaded. Northern Gray Forge Iron is offered at $12, Pittsburgh, or $11.15, Valley. The official price of Billets remains at $23, but no tonnage is being sold at this price, consumers being covered by a sliding scale contract. There has been no material changes in prices of finished products, with the exception of Merchant Pipe, which has been lowered. There is some cutting in prices of Wire and Wire Nails, and Bar Iron is slightly weaker.

Ferromanganese.—We do not hear of any sales and continue to quote English and Domestic, 80 per cent. Ferro, at $41.50 to $42, Pittsburgh.

Muck Bar.—The nominal price of Neutral Muck Bar is $24, Pittsburgh, but on a firm offer this would be shaded.

Wire Rods.—The market is very quiet, and we quote Bessemer and Open Hearth Rods at $28 to $28.50, Pittsburgh.

Skelp.—A sale of 300 tons of Grooved Steel Skelp is reported at 1.32½c., Pittsburgh. We quote Grooved Iron Skelp at 1.40c. to 1.45c.; Sheared, 1.45c. to 1.50c., and Grooved and Sheared Steel Skelp at 1.32½c. to 1.35c., Pittsburgh.

Steel Rails.—The situation continues quiet and no large contracts have been placed since our last report. It is not believed there will be any change in price of Rails at the Rail meeting this week. We quote at $28 at mill for Standard Sections, the mills equalizing freight. Light Rails are selling at $21 to $24, depending on weight.

Structural Material.—No large jobs were given out in the past week. Plans are under way for a number of large Steel structures which will be ready for bids before long. There is not much inquiry for bridge work, but quite a number of small jobs continue to be placed. A good deal of local tonnage is in sight, but it will not be ready for several months. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6, 1.60c.; Zees, 1.60c.; Tees, 1.60c.; Steel Bars, 1.60c., half extras, at mill; Universal and Sheared Plates, 1.60c.

Plates.—There is no improvement whatever in the demand, and several of the leading mills in this district will be idle during the greater part of this month for lack of orders and to make repairs. Opinion is divided as to whether there will be a reduction in price of Plates at the meeting of the Plate Association this week. No matter what is done, it is believed that the demand will soon show betterment, as a good deal of tonnage is being held back until after the meeting, and some of this will have to be placed whether any reduction is made in prices or not. Reports are still current of concessions in the price of Plates, especially on narrow sizes. We quote: Tank Plate, ¼-inch thick and up to 100 inches in width, 1.60c., at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, A. B., M. A., and ordinary Fire Box, 1.80c.; Still Bottom, 1.90c.; Locomotive Fire Box, not less than 2.10c., and up to 3c.; Plates over 100 inches to 110 inches in width, not less than 5c. per 100 lbs. extra; Plates over 110 inches to 115 inches wide, not less than 10c. extra; Plates over 120 inches to 125 inches wide, not less than 25c. extra; Plates over 125 inches to 130 inches wide, not less than 50c. extra; Plates over 130 inches wide, not less than $1 extra; Plates 3-16 inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra; No. 9, $5 extra. Above prices are on carload lots, f.o.b. at mill, Pittsburgh, with 5c. extra for less than carload lots; terms, net cash in 30 days, and for all points of delivery in the United States except the Pacific Coast.

Sheets.—A leading interest reports that specifications on Sheets were better in June than in May, and shipments show a corresponding increase. New tonnage in Sheets is light, and probably will be during this month, but a better demand is expected early in August for the fall trade. We quote Black Sheets, box annealed, one pass through cold rolls, as follows: No. 26, 1.95c. to 2c.; No. 27, 2c. to 2.05c.; No. 28, 2.10c. to 2.15c. The lower prices are minimum of the market, and are made only on carloads and larger lots. Galvanized Sheets are selling at about 80 and 7½ per cent. off. In net prices this discount figures out as follows: Nos. 22 and 24, Galvanized Sheets, 2.59c.; Nos. 25 and 26, 2.77c.; No. 27, 2.96c., and No. 28, 3.14c. All above prices are for carloads and larger lots, jobbers charging the usual advances for small lots from store.

Iron and Steel Bars.—New tonnage in both Iron and Steel Bars is only moderate, but several mills report that specifications on contracts are coming in better than for some time. Prices of Iron Bars are reasonably firm on the basis of 1.25c., Youngstown, but on large orders and desirable sizes it is possible 1.20c. might be done. The official price of 1.35c. on Steel Bars is being firmly held, except by one or two mills outside the association. We quote Iron Bars at 1.30c., Pittsburgh, but, as noted above, this might be slightly shaded on very desirable orders. We quote Steel Bars at 1.35c., Pittsburgh, in carloads and larger lots, with the usual differential for less than carloads. On Open Hearth Bars $1 a ton advance is charged.

Railroad Spikes.—New tonnage is rather light, as it always is at this season of the year. We quote Spikes at $1.60 per 100 lbs., f.o.b. Pittsburgh.

Hoops and Bands.—We continue to quote Steel Hoops at 1.55c. and Bands at 1.35c., extras as per Steel card. The mills are only fairly busy, as tonnage has been light for some time. One leading Hoop mill in this district is closed for repairs and inventory, but the Hoop mills of the Carnegie Steel Company in the Youngstown, Ohio, district will likely continue in operation right along until the wage scales have been arranged.

Merchant Pipe.—Under date of July 1 the leading interest issued a new schedule of discounts, making a material reduction on the smaller sizes of Black Steel Pipe. These lower prices have also been adopted by the outside mills. A contract is pending for a very large tonnage of Line Pipe and which is likely to be placed any day. General demand has been unsatisfactory for some time, and all the mills are anxious for business. It is believed that the lower prices just announced will have the effect of causing buyers to place orders, but this remains to be seen. The new discounts to consumers in carloads, effective from July 1, are as follows:

Merchant Pipe.

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
⅛, ¼ and ⅜ inch	70	55	69	54
½ inch	73	63	72	62
¾ to 3 inches	78½	68½	77½	67½
3½ to 6 inches	77	67	76	66
7 to 12 inches	72½	57	71½	56
Extra strong, plain ends, ⅛ to 8 inches	69	59	68	58
Double extra strong, plain ends, ⅛ to 8 inches	60	50	56	46

Boiler Tubes.—Lower discounts on Boiler Tubes have been adopted, dating from July 1. Demand has been light for some time, and the mills have been anxious for business, with the result that prices were being materially cut, and this led to the issuing of lower discounts. These new discounts in less than carload lots are as follows:

Boiler Tubes.

	Steel.	Iron.
1 to 1½ inches	48	43
1¾ to 2¼ inches	60	43
2½ inches	62	48
2¾ to 5 inches	68	55
6 to 13 inches	60	43

Discounts on Boiler Tubes in carload lots are about two points lower than the above.

Merchant Steel.—As yet actual tonnage being placed is for small lots only, but with heavy crops practically assured orders from Implement makers ought to be good in the fall. A good many plants will be idle the greater part of this month for inventory and repairs. We quote: Plow Slabs, ¾ inch and heavier, 1.60c.; Tire Steel, 1.55c. to 1.60c.; Sleigh Shoe, flat, 1.40c. to 1.45c.; Cutter Shoes, 2.05c. to 2.10c.; Plow Steel, 6 inches and under, 1.35c.; Toe Calk Steel, 1.85c. to 1.90c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades, and 12c. and upward for special grades. Shafting is 52 per cent. off in carloads and 47 per cent. in less than carloads, delivered.

Spelter.—There was a sharp advance in the price of Spelter last week, and the market is now very firm. Prime grades of Western Spelter are held at 4.73½c. to 4.78½c., Pittsburgh, some sellers holding firmly for the higher figure.

Tin Plate.—The adoption of the wage scale for Tin Plate mills for the year beginning July 1 insures steady operation of the mills, with the exception of such plants as may close for inventory and repairs. The Tin Plate mills are very busy on specifications and have their product under contract for some months ahead. We quote 100-lb. Cokes at $3.40, Pittsburgh.

Iron and Steel Scrap.—Prices of Old Material have reached such a low point that dealers are refusing to sell, preferring to hold their Scrap in the belief that prices will be higher within a month or two. Firm offers at $10.50 on Heavy Melting Scrap have been turned down, dealers asking $11 and higher. We omit quotations on other grades of Scrap, as there is nothing doing.

Coke.—Last week over 1000 ovens in the Connellsville region were put out of blast, owing to dull demand for Coke, and a great many more will be shut down this week. The Frick Coke Company blew out 600 ovens and at the Cochran plants about 300 were blown out. Out of nearly 29,000 ovens in the Upper and Lower Connellsville region more than 8000 are idle, and this number will be rapidly increased unless demand for Coke soon improves. Best Connellsville Furnace Coke is being freely offered at $1.40 to $1.45 per ton at oven for prompt shipment, but operators refuse to make contracts at these low prices, as they are said to be below actual cost of making Coke. Connellsville 72-hour Foundry Coke is offered at $1.75 to $1.85 a ton at oven for prompt shipment, but on contracts over balance of this year higher prices are quoted. Main Line Furnace Coke is offered as low as $1.25 a ton and Foundry $1.50 to $1.60 a ton.

From New Zealand comes news of the invention of the Galbraith furnace, designed to convert the Taranaki deposits into merchantable iron. Two Auckland gentlemen, Messrs. Galbraith and Stewart, are the inventors, and the furnace is an electrical one, maintaining any temperature up to 6300 degrees F. It is Mr. Stewart's intention to visit America to introduce the patent there. Why this last course is necessary does not seem clear at present. If the iron sand can be converted into marketable iron at a marketable price, why not commence operations at once?

The German Iron Market.

ESSEN, June 23, 1904.

The reason why I have not sent a report on the condition of the German Iron and Steel market for the last three months has been that I desired to be able to state what has been the influence upon the market of the Steel syndicate, whose formation was welcomed with such great hope. As previously reported, the direct result of the formation of the syndicate was that consumers abandoned their reserve, and that all along the line the immediate requirements were covered. Since then the strengthening of the market has made decided progress, notably the home demand, which has developed very well, so that it was possible to dispose readily of the production, which has increased as compared with last year. This was done in spite of the fact that America has taken less and less of German Steel, and that the export to Great Britain has declined considerably. The works of the Steel syndicate have ample employment well into the third quarter in the pooled lines—Billets, Beams and Track Material. This is true to such an extent that the allotments of production originally established will have to be considerably increased. On the other hand, the situation is far from favorable in a series of finished products, notably in Sheets, Plates and Wire, in which the business is being considerably disturbed by outsiders. The result is that the consumers of these articles maintain a reserve until it is settled whether the Sheet Plate and Wire syndicates will continue to exist. In general, the statement may be made that there has not been a full realization of the hopes for a prolonged enlivening of business by the formation of the Steel syndicate. Until now that event has had very little influence upon the prices for finished products.

So far as the chief lines of the market are concerned, the following statement may be made: The business in domestic Ores has not been characterized by any pronounced movement, the market being very quiet. There has been no disposition to cover requirements for spathic Ores for the third quarter, since the furnaces consider present prices too high. The result is that the home mines are running on short time. The requirements for Lorraine Minnette have been covered in many cases up to the end of the year, and in all cases up to the end of the third quarter, so that business at the present time cannot be done. Swedish Ores are steadily crowding out of the German market the Spanish Ores, and during the last few days a number of works have made a joint purchase, which is estimated to have involved about $5,000,000.

In Pig Iron the works of Lorraine and Luxemburg are well employed, while the furnaces of the Rhein provinces and Westphalia do not always succeed in easily marketing their increased product. The result is that stocks are increasing, although it must be noted that thus far they are very small. The Silesian furnaces are selling their production easily. The unfavorable tendencies in the Rhenish Westphalian Pig Iron markets are partly due to imports from Great Britain and partly to the sharp competition which the outside plant of the Kraft Company, at Stettin, is making. Prices are: 10 to 12 per cent. Manganese Spiegel, 67 to 68 marks; Special Mill Iron, 56 marks per ton, f.o.b. Siegen; Basic Bessemer Pig, 57.40 to 58.10 marks, delivered, consuming Steel works; Foundry No. 1, 66.50 marks; Foundry No. 3, 64.50 marks; Hematite, 67.50 marks; Luxemburg Mill Iron, 45 marks; Luxemburg Basic Pig, 46 marks; Luxemburg Foundry Iron, 52 marks, all f.o.b. furnace.

Offerings are somewhat larger than the demand in the Scrap market and prices are declining. The Open Hearth works are trying with the aid of a new process to reduce considerably the percentage of Scrap in the charge. Recently the offerings of Heavy Scrap have been at 61 to 62 marks; Plate Scrap, 60 marks; freshly Bundled Sheet Scrap, 56 to 57 marks; Railroad Scrap, 58 to 59 marks; Heavy Iron Scrap, 58 to 59 marks, and Old Iron Rails, 72 to 73 marks.

In the Steel market the works are employed to the end of September and prices are unchanged. Shipments to foreign countries have declined, and prices for the home market are as follows: Basic Ingots and Heavy Blooms, 77.50 marks; Ordinary Blooms and Heavy Billets, 82.50 marks; Ordinary Billets of 50 mm. square, 90 marks; Slabs, 92.50 marks, f.o.b. Dortmund, Ruhrort and Diedenhofen; Open Hearth material is quoted 5 marks per ton more. Ordinary Hard Bessemer Billets, for tools, costs 120 to 122.50 marks, and higher carbons a corresponding advance. Puddled Bars are in greater demand since puddling has declined in the Luxemburg district. The result will be that there will be more puddling done in Westphalia, where Ordinary Puddled Bars cost 83 to 84 marks, and special quality Bars 90 to 92 marks.

The Bar Iron market has been quite active in the last few months, and repeated advances have taken place, but now that the dealers have covered into the fourth quarter the market has become rather more quiet. For the home market Basic Bessemer Bars are quoted 112.50 marks, while Open Hearth quality is quoted 115 marks. Iron Bars are 125 marks, and Rivet Rods 132.50 to 135 marks. The exports of Basic Steel Bars are fairly important, but prices are less favorable, being about 105 to 106 marks, f.o.b. ocean port. The business in Bands and Hoops is quiet, but the works are well employed throughout. In view of the operations of outsiders, however, prices, which in some cases do not even cover cost, have not been advanced. The present standard price is about 120 marks, but this is frequently cut.

The Skelp mills have not enough work, and prices are for Steel Boiler Tube Skelp, 117 to 122 marks, and for Cast Tube Scrap, 128 to 131 marks, according to width. The Pipe syndicate has changed its scale, according to which there has been a lowering in prices, which animated buyers. Generally speaking, however, the Tube business both for the home market and for export leaves much to be desired.

Employment is active with the Wire Rod mills. The syndicate on June 11 had 42,000 tons of orders to deliver before July 1. There is a good deal of work, too, for the Wire mills, and for the Wire Nail mills. Business in Beams is very active, and the works are heavily engaged for a considerable period both for the home market and for export. The uncertainty as to the further life of the syndicate is checking business in Plates. The syndicate expires this month, and it is not quite certain yet whether it will be renewed. If it is not then the Sheet syndicate will have to go by the board also, and there will be a sharp fight between the mills.

Machine shops and boiler shops complain a good deal in spite of the increased export orders.

The New York Machinery Market.

NEW YORK, July 6, 1904.

Both purchaser and consumer availed themselves of the holiday of the week under review, and, consequently, little business was done. Prospective purchasers, who have been commanding the attention of the trade of late, withheld their orders, and that it was generally expected to be so is indictated by the fact that little or no effort was made to bring the matters to a close on the part of the sellers.

In connection with the Pennsylvania tunnel scheme nothing of importance has transpired. Machinery merchants, representing all lines, continued to submit their proposals, but no purchases have been made as yet. The same conditions apply in connection with the Erie Railroad machine tool proposition.

Considerable attention is being given the project of B. T. Babbitt, the soap manufacturer of 64-84 Washington street, New York, which contemplates the construction of immense new works at North Bergen, near Hackensack, N. J. A very large tract of land has been purchased at this point and plans are rapidly being completed for a great new factory system. It is intended at present to erect some 13 large buildings, all of which will be devoted to the manufacture of soap. Machinery of many types will be installed in large quantities. The power plant equipment will aggregate about 5000 horse-power. Of course, a large amount of the machinery will be of a special nature, but there will also be a good deal of the more standard types of equipment, such as machine shop, elevating and conveying apparatus, pumps, heating and drying appliances, &c. The specifications for the mechanical equipment have not been issued as yet. Plans for a large new plant are also in course of preparation by James Pyle & Sons, Greenwich and Vestry streets, New York. It is to be located at Edgewater, N. J., near the new plant of the American Glucose Company, and is to be devoted to the manufacture of Pearline. Practically the same conditions which we have outlined in the case of the Babbitt plant apply to this project.

A new departure in the selling of machinery is being put into practice by E. W. Irwin, 114 Liberty street, New York. Mr. Irwin has decided to branch out as a specialist, but instead of specializing on any particular line of product, he has gone to the opposite direction and singled out a certain class of consumers whom he will endeavor to serve in all the lines which enter into the manufacture of their product. He has selected the shipbuilding industry along the Atlantic Coast, and is arranging with manufacturers of all kinds of machinery specialties and materials which are used by shipbuilders to exploit their wares and control their business among the shipbuilders on the Atlantic seaboard. Mr. Irwin has already arranged with the Philadelphia Pneumatic Tool Company to represent them exclusively along these lines, and he is now negotiating with a large number of builders of machine tools, wood working machinery, air compressors, forgings, plates and all similar products. His scheme includes the United States navy yards as well as the merchant marine plants. His plan is to have a corps of salesmen visit the various shipbuilding plants and keep constantly in touch with them as to their requirements.

Various appliances and steam specialties are being purchased by the New York Central & Hudson River Railroad Company for the two new power stations at Yonkers and Port Morris, N. Y. These stations, it will be recalled, are to furnish the electrical energy for propelling the trains through the underground approach to the Grand Central Station. The main contract for the generating apparatus was awarded to the General Electric Company some months ago. Contracts

have just been placed with the Taunton Locomotive Mfg. Company of Taunton, Mass., for feed water heaters.

The Edison Electric Illuminating Company is placing contracts for additional equipment for the Sixty-sixth Street Station, placing an order last week with the Taunton Locomotive Mfg. Company for about 4000 horse-power of feed water heaters.

Extensions to the power plant system of the Boston & Worcester Railway Company are being made at South Framingham, Mass. E. H. Kitfield, the company's chief engineer, whose offices are located in Boston, is aiming to make the new station just as good, if not a little better than any now in existence, so far as efficiency and economy are concerned. That he is not adhering strictly to lines already laid down in power station engineering is evidenced by his order just placed for the condenser equipment. It was awarded to the Alberger Condenser Company, 95 Liberty street, and calls for a high vacuum condensing equipment containing three cooling towers. As this apparatus is to operate in connection with turbo-generators, it is the first apparatus of its type ever ordered for similar service. The turbines will have a capacity of 2000 kw. The experiment of operating cooling towers in connection with high vacuum turbine condensers will be watched with interest.

A large tract of land at Eddystone, Pa., has been purchased by the Belmont Iron Works of Twenty-second street and Washington avenue, Philadelphia, for a site for new works. The plans for the new plant have not been fully completed, but so far as they have been decided they will include a riveting shop, 60 x 300 feet, with a lean to of similar size, which may be used for a template shop and storage purposes generally. Opposite this building and on the other side of the double track siding there will be a power house, consisting of a boiler and engine room, also a blacksmith shop, and one for riveting. As to the machinery, the company will probably need for the riveting shop a bending and straightening machine, angle shears, punches, rotary straight shears, grinding and emery tools, a drill press, riveters, a rotary planer and motors, as all of the machinery is to be electrically driven. W. W. Pharo, the vice-president and treasurer of the company, is in charge of the new work.

The Coughlin & Sanford Switch Company, 25 Broad street, New York, are preparing to build a branch shop at Troy, N. Y. The main building will be 80 x 150 feet, and will be used as a blacksmith shop. The company will soon be in the market for steam and power hammers, forges and a full equipment of machinery.

The Allegheny Cornice & Skylight Company of Allegheny, Pa., which recently suffered a slight fire at its plant, is in the market for a cornice press, a circle molding hammer, crimping rolls and an inclinable power press, which will be purchased within a few weeks. W. C. McClaskey, the vice-president of the company, is sending out the inquiries.

Contracts were awarded to the air compressor department of the Chicago Pneumatic Tool Company by the Pennsylvania Railroad Company for nine compressors to be distributed at various points along the line. Five of the machines are to have a capacity of 500 cubic feet per minute and four of them will be of double this capacity.

A great deal of activity has been displayed on the part of machinery merchants generally in connection with Government matters, as Uncle Sam has been an excellent customer of late, particularly for the navy yards. The announcement from Washington to the effect that it is intended to ask Congress for appropriations to make the Norfolk Navy Yard the largest in the country is therefore being received with much interest. The Navy Department has just purchased 270 acres of land adjoining the Norfolk yard at a price of $400,000. The plan of the Department is to spend several million dollars in the construction of dry docks and shops on this land, provided the necessary appropriations can be had.

Under bids opened June 14 for machine tools for the Eastern navy yards the following awards have been made:

Niles-Bement-Pond Company, New York, class 2, one 18-inch engine lathe, $520; class 3, one engine lathe, $530; class 6, one standard pattern engine lathe, $375; class 8, one engine lathe, $695; class 9, one cutting off lathe, $595; class 12, one pipe threading and cutting machine, $843; class 13, three 4-inch pipe machines, $2520; class 15, one No. 4 single punching and shearing machine, $709; class 16, one No. 3 turret head bolt cutting machine, $250; class 27, one double revolving rip and cross cut saw, $445; class 28, one slate sawing machine, $790; class 41, one 24-inch crank planer, $1223; class 44, one No. 2 universal surface grinder, $539; class 49, two electrically driven sensitive drills, $200; class 50, two upright drills with motor drive, $600; class 54, one crank shaper, $463.

Pratt & Whitney Company, New York, class 5, one engine lathe, $912; class 31, one 4½-inch cutting machine, $682; class 36, one thread milling machine, $961.

Hiles & Jones Company, Wilmington, Del., class 1, one 36-inch triple gear engine lathe, $1460.

Fairbanks Company, New York, class 7, one engine lathe, $624; class 14, one rivet machine, $2031.

J. R. Van Dyck Company, New York, class 42, one universal wet or dry grinding machine, $576; class 52, one 3-inch radial drilling machine, $485.

Manning, Maxwell & Moore, New York, class 19, one improved band saw machine, $325; class 32, one automatic gear cutting machine, $3800; class 45, one No. 1 universal cutter and reamer grinder, $345; class 47, one knife grinding machine, $300.

Drew Machinery Agency, Manchester, N. H., class 10, one automatic lathe, $437; class 17, one carving and molding machine, $361; class 30, one automatic wire straightening and cutting machine, $297; class 33, two combined shaping, edging, surfacing, molding and carving machines, $1040.

H. B. Smith Machine Company, Smithville, N. J., class 18, one tenoning machine, $198.

S. A. Woods Machine Company, South Boston, Mass., class 20, one improved quick acting jig or scroll saw, $70; class 22, one power feed railway cut off saw, $195.40; class 23, one heavy automatic railway cut off saw, $490; class 24, one automatic circular saw sharpener, $228; class 34, one improved surface sanding machine, $117.50; class 39, one heavy double planer and matcher, $2390.05; class 40, one heavy combined buzz planer, with side jointer attachment, $612.30; class 43, one automatic knife grinder, $280.

Hill, Clarke & Co., Boston, Mass., class 21, one power hack saw, $18.50; class 51, one improved friction drill, $229.

Geo. Place, New York, class, 25, one patent band sawing machine, $259; class 26, one new automatic band saw filing and setting machine, $60; class 29, one 300-ton wheel press, $1285; class 35, one single punching machine, $799.

H. A. Rogers, New York, class 37, two stanchion pipe benders, $397.

Brown & Sharpe Mfg. Company, Providence, R. I., class 46, one grinding machine, $683; class 48, one grinding machine, $673.

Potter & Johnston Machine Company, Pawtucket, R. I., class 53, one 14-inch crank pillar shaper, $349.

Cleveland Crane & Car Company, Wickliffe, Ohio, class 55, one 10-ton revolving crane, $5750.

Buffalo Forge Company, Buffalo, N. Y., class 56, two electrically driven centrifugal pumps and spare parts, $673.30.

The Sterling Company, Chicago, Ill., class 57, four 350 horse-power wrought steel sectional boilers, $21,522.

Baltimore Machine & Elevator Works, Baltimore, Md., class 58, one electric elevator, $2739.

Sterling Blower & Pipe Mfg. Company, New York, class 59, for installing three dust collecting systems in building No. 7 and two dust collecting system in building No. 11, $5689.

No award was made for class 11, one motor driven pipe cutting and threading machine.

The following awards were made for machine tools for the Eastern navy yards, bids for which were opened June 21:

Manning, Maxwell & Moore, New York, class 8, one double punch and shearing machine, $2830; class 22, one improved combination cross cut saw, dado and rip saw machine, $260; class 23b, one improved scroll saw, $125; class 26, one power band saw setting and filing machine, $80; class 29, one upright moulding machine, $468.

Pratt & Whitney Company, New York, class 1, one turret lathe, $1313; class 4, one tool maker's lathe, $595.50; class 36, one automatic screw machine with screw slotting attachment, $889; class 37, one thread milling machine, $965.

Niles-Bement-Pond Company, New York, class 2, one engine lathe, $800; class 9, one vertical punch, $783; class 10, one double punch and shear, $513; class 11, electric motors, &c., $1174; class 12, one electrically driven combination crank shaper, $880; class 13, one single traveling head shaper, $1435; class 16, one 42-inch planing machine, $2740; class 18, one plate planing machine, $3097; class 19, one hand planer and jointer, $690; class 39, one boring and turning mill, $1290.

The Fairbanks Company, New York, class 3, one pattern makers' lathe, $130; class 20, one cutter grinding machine, $305; class 41, one duplex folding and seaming press, $935; class 41, two arbor presses, $47.60.

Fox Bros. & Co., New York, class 5, one hand and power post drill, $43.70; class 49, hydraulic jacks, $530; class 50, 12 special hand trucks, $182.28.

Prentiss Tool & Supply Company, New York, class 6, one full universal radial drilling machine, $1190; class 21, two single emery grinders, $372; class 31, one power mortising machine, $143.

Motley, Green & Co., New York, class 7, one sensitive drill, $62.50.

Atlantic Works, Philadelphia, class 14, one heavy timber planing machine, $2000; class 15, one dimension planing machine, $2100.

Bentel-Margedant Company, Hamilton, Ohio, class 17, one single surface planing machine, $490; class 28, one ripping saw table, $360.

Drew Machinery Agency, Manchester, N. H., class 23a, one improved scroll saw, $77.

Geo. Place, New York, class 24, one band saw mill, $4674; class 25, one band scroll and resaw machine, $749; class 30, one outside molder, $245.

Hill, Clarke & Co., Boston, Mass. class 27, one saw bench, $299; class 35, one electrically driven pipe threading and cutting machine, $884.

The H. B. Smith Machine Company, Smithville, N. J., class 32, one single end tenoning machine, $190.

Walter H. Foster Company, New York, class 33, one turret head bolt cutting machine, $365.

Ajax Mfg. Company, Cleveland, Ohio, class 34, one bolt and rivet machine, $1610.

Morgan Engineering Company, class 38, one hydraulic keel plate bending machine, $6385.

Industrial Works, Bay City, Mich., class 43, one 10-ton locomotive crane and one 40-ton locomotive crane, item one, $5150; item two, $10,450.

Laidlaw-Dun-Gordon Company, Philadelphia, class 44, one horizontal two-stage steam driven air compressor, $9785.

The Albro-Clem Elevator Company, Philadelphia, Pa., class 46, one electric elevator, $1185.

John B. Westbrook, Norfolk, Va., class 48, one 80 horsepower return tubular boiler, $782.50.

General Fire Extinguisher Company, Boston, Mass., class 51, fire extinguishing apparatus, $4699.

No awards were made for class 42, one 20-ton locomotive steam crane; class 45, one concrete mixer, and class 47, one electric elevator.

The following awards have been made for machine tools for the Mare Island Navy Yard, bids for which were opened June 22:

Compressed Air Machinery Company, San Francisco, Cal., class 1, one 24-inch turret lathe, $1864.

Tatum & Bowen, San Francisco, Cal., class 2, wooden turret lathes, motor driven, $3267; class 10, one improved band sawing machine, $511; class 13, two shapers, motor driven, $1430; class 21, one steam glue heater, $22.

General Incandescent Arc Light Company, New York, class 3, one double dry grinder, motor driven, $178; class 4, one plain double dry grinder, motor driven, $192.50; class 5, one plain double grinder, $244.50.

Henshaw, Bulkley & Co., San Francisco, Cal., class 6, one automatic knife grinder, motor driven, $389; class 7, one universal tool grinding machine, motor driven, $155; class 8, one improved scroll saw, motor driven, $260; class 9, one 42-inch band saw, scroll and resaw, $840; class 12, one metal circular saw table, $282; class 14, one improved hand jointer, $292; class 17, one pipe threading and cutting machine, $965.

Berlin Machine Works, Beloit, Wis., class 11, one heavy pattern motor driven lightning self feeding rip saw table, $560; class 15, one double spindle upright molding machine, $340.

Harron, Rickard & McCone, San Francisco, Cal., class 16, one automatic plug cutting machine, $1014; class 19, one electrically operated sensitive bench drill, $506.40.

The J. W. Cregar Agency, Philadelphia, class 18, one four-spindle nut taper, $890.

Manning, Maxwell & Moore, New York, class 20, one 4-inch heading, upsetting and forming machine, $5725.

R. C. Hoffman & Co., Baltimore, Md., class 22, one finished tail shaft, $538.20.

Iron and Industrial Stocks.

The improvement in the tone of the market which was noted last week has continued, despite the holidays and the small volume of business. Prices of almost all stocks have steadily advanced. American Car & Foundry common, which was depressed to 14¾ upon the passing of the usual quarterly dividend, subsequently regained much of its loss, advancing to 15½ on Tuesday of this week. Changes in other active stocks up to Tuesday were as follows: Car & Foundry preferred 71 to 73; Locomotive common 18¾ to 20¼; Pressed Steel common 26¼ to 27¼, preferred 70 to 71½; Republic preferred 41 to 42; United States Steel common 9⅝ to 10⅛, preferred 55⅜ to 56¾, new 5's 75¼ to 77. American Steel Foundries received some attention during the week, the common selling at 3½ and the preferred at 27 to 27½. The last transactions on active stocks up to 1.30 p.m. on Wednesday were made at the following prices: Car & Foundry common 16¼, preferred 71½; Locomotive common 20⅜, preferred 82; Colorado Fuel 31¼; Pressed Steel common 28, preferred 71¾; Railway Spring common 17½, preferred 75; Republic common 7, preferred 42¼; Sloss-Sheffield common 35½, preferred 83; Tennessee Coal 37⅛; United States Steel common 10⅞, preferred 57⅞, new 5's 77⅞.

The Alabama Consolidated Coal & Iron Company offers for exchange and purchase to preferred stockholders $1,500,000 5 per cent. 30-year gold bonds, which were authorized to be issued for this purpose at a meeting of the stockholders last January. Each holder of preferred stock will have the privilege of exchanging for bonds at par an amount of preferred stock equal to 50 per cent. of his holdings, but as a condition of exercising this right each stockholder must subscribe at 90 and interest for a further amount of authorized bonds equal to 40 per cent. of the amount exchanged for preferred stock. Adjustment of interest on all payments is to be made on the basis of 5 per cent. per annum. Payments are to be made as follows: On or before July 30, 50 per cent.; October 31, 25 per cent.; January 1, 1905, 25 per cent. The preferred stock will be exchangeable for bonds after the first of these installments has been paid.

Dividends.—American Car & Foundry Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable August 1.

New York.

NEW YORK, July 6, 1904.

Pig Iron.—Founders in the metropolitan district have bought very little during the past week. There has been quite a movement, however, in Basic and Mill Iron for New England delivery. Sales include about 10,000 tons of Northern Basic, largely for July delivery, and about 5000 tons of Mill Iron for delivery during the next four months. The labor trouble in the Alabama collieries is causing banking of furnaces and a firmer tone in the market. We continue to quote for Northern brands, at tidewater, $14.75 to $15 for No. 1 Foundry, $13.75 to $14.25 for No. 2 Foundry and $12.75 to $13 for Gray Forge. Tennessee and Alabama brands are $12.75 to $13.25 for No. 2 Foundry and $12.25 to $12.75 for No. 3 Foundry.

Steel Rails.—The market is very quiet. It is not believed that any change in prices will be made. All the mills are now equalizing freights. We quote $28, delivered, for Standard Sections and $21 to $23, at mill, for Light Rails.

Cast Iron Pipe.—Transactions are few, and the outlook is not very favorable for the placing of much business this summer. A New England contract for 2000 tons is reported to have been secured by a broker who underbid the manufacturers. While the current demand is not large, some of the Eastern manufacturers appear to have taken more orders than they can fill in the time named for delivery and are compelled to purchase Pipe from other foundries. Carload lots are quoted at $26 per gross ton for 6 to 10 inch and $25 for 12 inch, at tidewater.

Finished Iron and Steel.—The most important transaction in the Structural line was the placing of the contract for the Pennsylvania Railroad Company's new bridge over the Susquehanna River at Havre de Grace, Md., requiring about 10,000 tons of Steel. The work was equally divided between the American Bridge Company and the Pennsylvania Steel Company. The bridge is to be completed within one year. Contractors are making many estimates, especially on buildings, but the estimates do not develop into orders. It is interesting to note in this connection that foreign Beams are going into some building work recently put in hand in this city. It appears that German Beams can be imported at a rate somewhat under the domestic seaboard price. Plates are very quiet, buyers waiting for the outcome of this week's meeting of the Plate Association. Bar Iron is in light demand, but prices are steady. We quote, at tidewater, as follows: Beams, Channels, Angles and Zees, 1.74½c. to 2c.; Tees, 1.79½c. to 2c.; Bulb Angles and Deck Beams, 1.84½c. to 2.05c. Sheared Plates in carload lots are 1.74½c. to 1.85c. for Tank, 1.84½c. to 2c. for Flange, 1.94½c. to 2.10c. for Marine and 1.94½c. to 2.50c. for Fire Box, according to specifications. Refined Bar Iron, 1.44½c. to 1.49½c.; Soft Steel Bars, 1.49½c.

Old Material.—The market is lifeless. The quantity of Relaying Rails offered by railroad companies is increasing. New England roads are offering further lots delivered at Sound ports. Quotations per gross ton, New York and vicinity, are nominally as follows:

Old Iron Rails	$14.00 to $14.50
Old Steel Rails, long lengths	12.00 to 12.50
Old Steel Rails, short pieces	10.00 to 10.50
Relaying Rails	16.00 to 17.00
Old Car Wheels	10.00 to 11.00
Old Iron Car Axles	15.50 to 16.00
Old Steel Car Axles	14.00 to 14.50
Heavy Melting Steel Scrap	10.00 to 10.50
No. 1 Railroad Wrought Scrap	11.50 to 12.00
Iron Track Scrap	10.50 to 11.00
Wrought Pipe	7.50 to 8.00
Ordinary Light Iron	4.50 to 5.00
Cast Borings	3.50 to 4.00
Wrought Turnings	5.50 to 6.00
No. 1 Machinery Cast	9.00 to 10.00
Stove Plate	7.50 to 8.00

For the first time in the history of our foreign trade, the value of manufactures exported during the month of May exceeded that of agricultural products.

The State of New Jersey will this year receive a revenue of about $2,500,000 from taxes on corporations, not including railroad or canal companies, or corporations taxed on a basis other than the amount of capital stock.

The Philadelphia Machinery Market.

PHILADELPHIA, PA., June 30, 1904.

There has been no material improvement in the Philadelphia machinery market during the past month. Compared with the volume of business during May, the total for June would quite probably be smaller. While there is considerable disappointmtment, there is no feeling of distrust on the part of buyers and consumers in the return of more prosperous conditions in the future. July and August are expected to contribute a certain amount of business, but not large, as in the usual course of affairs these two months fall behind owing to summer vacations and shutdowns of various plants. September and October are expected to be more active, but will be dependent on crop conditions and the position held by the candidates in the Presidental race. With the passing of the Presidential election some gauge as to the future possibilities in the machinery and tool trade is looked for, and while it is hardly expected that any material volume of business will follow immediately, it is believed that matters will then shape themselves for a better business early in 1905.

In many lines during the past month some plants have run entirely on stock, with only enough men to keep their organization intact. Here and there could be found a bright spot: a shop working full time and with orders ahead to keep busy for some time. These, however, are cases where special tools and special machinery are the particular product of the plant, and are mostly establishments of the smaller size. There is, on the whole, a large percentage of idle machinery, the rule being that the larger the plant the greater the percentage of inactivity. Small plants, which do not require many orders to keep them going, are receiving orders enough to keep things moving, but the lack of new business has caused shops with large capacities to retrench and curtail on every side. In cases where from 800 to 1500 employees have found employment during 1902 and 1903 forces have been reduced to a few hundred, and in instances even these are working on short time.

As a rule, it makes no difference how attractive the figures named for a machine or tool may be, it is no inducement to buy if the article is not needed. Inquiries have, therefore, been irregular, and on the whole are probably diminished in number. In some cases they lead up to business promptly, while in other cases the opposite is true. There is, however, some good business pending here and there, which it is expected will be placed during next month.

Deliveries are to be had promptly in almost all lines, particularly standard tools, both light and medium weight, and in many cases heavy tools also. Manufacturers' stocks are large, as is also the supply on dealers' floors, and immediate shipment can usually follow the order. In the line of extra heavy tools and special machinery early dates are generally mentioned for delivery, shops can take hold of work speedily, and raw materials and supplies needed in construction can be promptly had.

There is very little change in the foreign demand. Pneumatic tools, appliances and machinery continue in fair demand. In some lines which have been more established a falling off his been noted. General machinery and machine tools continue inactive. Conditions abroad have not improved, while costs are still too high in this country to meet foreign competition.

Iron and steel castings are in good supply. Trade is inactive, and short time is being made in various gray iron casting plants. Some of the steel plants are fairly active. The new plant of the Delaware River Steel Casting Company, which has been building for some time, ran its first heat during the latter part of the month, and the company is now in the field for orders for steel castings. Prices on both iron and steel castings still depend upon how badly the foundry naming them needs the work.

Machinery and machine tool dealers have had a quiet month. Some have noted a falling off in the total as compared with May, while in isolated cases a dealer is found who says that he has really had a good month. Sales in most cases have been confined to smaller tools, but here and there a sale of a good sized radial drill or a lathe is made, which adds materially to the month's total. Supplies for machine shops are dull, reflecting the general condition of the trade.

Manfacturers of the smaller engines, boilers, &c., report only fair conditions. The demand has, as a rule, been weak, and no sales of an important character have been recently made.

Prices in some instances have been lowered. We are advised of additional discounts which have been made in several small tools and in shop equipment. Competition on some classes of heavy tools has resulted in lower quotations. In a number of lines of standard goods, however, list and discounts are unchanged and are being rigidly adhered to.

The Ferrofix Brazing Company, recently organized, has purchased from the American Brazing Company the exclusive right to use its methods in the State of Pennsylvania. A plant has been established at 2024 Cuthbert street, in this city, equipped to braze iron castings of all classes up to 10 tons in weight. It is also proposed to establish plants in other sections of the State, but just where has not been fully decided. The officers of the new company are Edgar W. Baird, president; G. Herbert Taylor, secretary and treasurer, who, with W. Mosley Swain and Mathew Baird, Jr., make up the Board of Directors.

The Delaware River Steel Casting Company, Chester, Pa., one of the new steel foundries recently referred to in these columns, has during the past month begun active operations, and is now prepared to furnish steel castings promptly, in accordance with specifications.

Thomas H. Dallett Company, Incorporated, has had a good month's business in pneumatic stone tools. There has been considerable foreign demand for these tools, and several have been exported to England, with good prospects for additional business. Recently domestic deliveries of stone tools include shipments to the Pacific Coast. While the Dallett Company's general trade is only fairly active at present, good indications are reported for several large orders in the near future.

The Philadelphia Pneumatic Tool Company has had a good month, and orders for a considerable number of tools have been taken, particularly during the last half. The foreign demand keeps up well, orders having been taken for export to France, Germany and England, and prospects for future business from these sources are considered quite promising. The domestic demand is principally for boiler and structural work, while shipyards, locomotive shops and the various railroads have not been small buyers.

The American Pulley Company notes a slight improvement in orders during the past month when compared to the total of May. Orders are being received as numerously as ever, but for smaller quantities of pulleys. Buyers are taking goods only as they want them, no large advance orders being received. Recent deliveries by them include two carload lots to St. Louis, Mo., and a carload to San Francisco. Exportations continue in smaller quantities to Australia, New Zealand, England and the Continent.

The George V. Cresson Company is busy on a large amount of general orders for mill equipment, most of which are for renewals and repairs. A good demand is also noted for the Cresson variable speed mechanism. The demand for strictly new power equipment, however, is more or less quiet.

The Standard Pressed Steel Company advises us that it is getting a good share of the hanger business, orders for a large number of hangers having been booked. Agencies for its American Pioneer pressed steel shaft hanger are being established in all large centers in the United States, and openings for foreign trade are now receiving attention.

I. H. Johnson, Jr., & Co., Incorporated, has recently shipped several large lathes to parties in the Middle West and to nearby purchasers. While the demand has improved somewhat for the line of tools built by this company, actual orders have been coming slowly, but some very fair business is expected to develop in the near future.

H. B. Underwood & Co. have had quite an increase in orders during the past month, a number being for their special railway repair shop tools. They have also had a very good run of general work. Inquiries continue fair. Shipments of portable cylinder boring bars, lathe boring bars, portable valve seat rotary planing machine and portable crank pin turning machines have been made during the past month to Eastern, Southern and Middle Western railway companies.

The Espen Lucas Machine Works keep fairly busy. Inquiries are slightly better than during the last month, but orders are still unsatisfactory. Sufficient work is on hand, however, to keep the plant fairly employed. Recent deliveries made by them include rail saws for Western and for New York parties. Cold-saw cutting-off machines have been delivered to local and nearby concerns, while a large forging and crank shaft saw has been delivered to a Pennsylvania buyer. They have also had a fair demand for grinders, a number of which have recently been shipped.

The Falkenau Sinclair Machine Company has shipped a number of standard presses to various parties during the month. A large double acting press was shipped to the West, and delivery was completed on a heavy lithographic press for color work for New York. Several special presses have also been delivered to the Frankford Arsenal. Inquiry

continues fair, although in some lines orders do not develop very promptly.

The Tabor Mfg. Company has had a good month's business, though not as large as the previous month. The domestic demand for molding machines holds its own, while the foreign demand has somewhat improved. Among recent export orders was one for a power ramming split pattern machine for the Mildand Railway, Derby, England, and another of the same type for the Royal Arsenal, Woolwich, England. The company's new power squeezer is meeting with considerable favor, and a number have been shipped to various parties. Several large Taylor-Newbold saws have been shipped to large forging plants, where they have been very favorably received.

The Eynon-Evans Mfg. Company is making quite an addition to its foundry; a two-story brick building, 50 x 136 feet, is being erected, which, when completed, will give much additional floor space for molding. The equipment will be modern, including industrial and overhead railway systems, molding machines and other necessary appliances. Additional crucible melting furnaces will be built, and the producing capacity of the foundry will be more than doubled. The company keeps quite busy, particularly in the foundry, having orders for a considerable number of acid resisting bronze and other castings.

Dienelt & Eisenhardt have received a fair number of orders during the past month, the total, however, not showing any material increase over that of the previous ones. Their machine shop is busy on orders for special machinery, hydraulic presses and oil cloth printing machines, but the foundry department is only moderately active.

The Energy Elevator Company notes a falling off in orders for elevators, particularly from local purchasers, but a large amount of work is on hand from out of city sources. Among some of the orders received may be mentioned a one-ton freight hoist for the Eastern Penitentiary of Pennsylvania, at Philadelphia, and one for two freight lifts at the House of the Good Shepherd in Germantown. A 4000-pound lift has been shipped to the Pennsylvania Soap Mfg. Company, Lancaster, Pa., while other deliveries include shipments to parties in Oakley, Kan.; Jonesboro, N. C.; Boston, Mass.; San Antonio, Texas; Phœnixville, Pa.; Buffalo, N. Y.; Swanton, Vt., and East Liverpool, Ohio.

The Baldwin Locomotive Works are not so active. Orders are not coming in very freely, the railway companies particularly being backward in placing their requirements. Considerable work is still on hand, but they have found it necessary to materially reduce their working force. This reduction was not made at once, but has been gradual throughout several months. Delieveries continue about the same as usual, covering a number of railways as well as individual concerns. Work has been completed on a number of engines undergoing general repairs.

The Nazareth Foundry & Machine Company, Nazareth, Pa., advises us of the receipt of a number of orders for cement mill repair plants, which is a line of work taken up by the company, and which can be furnished promptly. The equipment of this company has been enlarged by a Porter engine lathe, a Mitts & Merrill key seater, a four-spindle multiple drill, a heavy drill and a portable crane, and it is now in a position to furnish machinery for cement, slate and textile mills, and for general use, as well as castings for all purposes.

The Molders at Pittsburgh.—PITTSBURGH, PA., July 6, 1904.—No agreement between the founders and molders was reached at the extended conference held in the rooms of the Manufacturers' Association in Pittsburgh last week. The founders requested a reduction of 10 per cent. in the minimum wage rate of $3 per day, and also asked for the insertion of a clause in the agreement for "open shops," or, in other words, that they be allowed to employ or discharge any man they saw fit, regardless of his affiliations with labor organizations. The request for a reduction of 10 per cent. in the minimum wage rate was withdrawn, but the founders insisted on the latter clause, and a disagreement resulted. So far none of the foundries in the Pittsburgh district has closed, each concern having made individual agreements with its molders both as regards wages and shop rules. Another conference will likely be held at an early date, although no time for it has yet been set.

The molders employed in the foundry of the Putnam Machine Company, Fitchburg, Mass., are on strike because of the refusal of the company to grant sweeping demands, including a minimum wage of $2.75 a nine hour day, an abolition of the piece work system, and the regulation of the apprentice system according to the union rules. The strike has not the sanction of the Iron Molders' Union of North America, having been called direct by the local union. It is understood that the national organization is to take a hand in the matter. The foundry is running, the strike not having seriously crippled production. The company's machine shop is not affected.

Metal Market.

NEW YORK, July 6, 1904.

Pig Tin.—The market is practically unchanged from last week. Efforts were made to advance prices, and they terminated without success. Little interest is now being shown in the article either in this market or abroad. Business is on a very small scale, and consumers seem to be of the opinion that prices are still too high. Spot is quoted at this writing at 25.60c. to 25.80c., and July can be had at 25.50c. The London price for spot is unchanged at £117, but futures have gained a little, and are now quoted at £117 2s. 6d. The monthly statistics show that the predictions for large shipments for the month of June were amply justified. The total statistics for Europe and the United States show, as compiled by C. Mayer, secretary of the New York Metal Exchange:

	Tons.
Total visible supply June 30, 1904	13,780
Against visible supply May 31, 1904	14,609
Against visible supply June 30, 1903	15,107
Arrivals at the Atlantic ports amounted to	3,150
Total arrivals since January 1, 1904	19,396
Of which from Straits by direct steamers	7,305
Of which from United Kingdom	10,867
Of which from Holland	324
Of which from European Continent	900
The deliveries for June we figure as	3,500
Total deliveries since January, 1904	19,100
Deliveries same period in 1903	21,400
The shipments from Straits amounted to	5,105
Against previous month	4,850
Against June, 1903	4,350
Australia shipped	422
Against previous month	285
Against June, 1903	428
Statistics for the United States—Pacific ports excluded—June 30, show as follows:	
Stocks, including on dock and arrivals	1,667
Afloat	3,289
Total	4,956

The combined deliveries of London and Holland for June were 353 tons larger than last year. For the first six months of this year they show an increase of 697 tons, compared with the same period of last year.

Shipments from the Straits for June were 755 tons larger than for the same month of last year. For the first six months of this year they are 1862 tons more than for the same period of last year.

Australia shipped 6 tons less in June compared with the same month of last year. The total decrease for the first six months of this year amounts to 44 tons, compared with the same period of last year.

The total visible supply on June 30 was 1327 tons below that of June 30 of last year.

Copper.—The market is a shade firmer, although no increase in demand for home consumption is reported. The demand for export continues on a good scale. Present prices are as follows: Lake, 12.62½c. to 12.87½c.; Electrolytic, 12.50c. to 12.75c.; Casting, 12.25c. to 12.50c. The London market has also advanced and is cabled to-day as follows: Spot, £57 5s.; futures, £57 3s. 9d.; Best Selected, £60 15s. Exports during the month of June were large, amounting to 16,179 tons; the total for the first six months shows an increase of 50,107 tons, compared with the same period of last year. Total exports since January 1, 1904, exclusive of Southern ports for June, were 113,944 tons, against, for the same period in 1903, 63,837 tons.

Pig Lead.—No change is to be noted from last week. The market is steady and unchanged here. In St. Louis prices have declined, however, and the London cables announce an advance. The American Smelting & Refining Company continues to quote Desilverized, in 50-ton lots, on a basis of 4.20c., 30 days shipment. Spot, ex-store, is quoted here 4.25c. to 4.35c. St. Louis telegraphs 4.07½c. and the London quotation to-day is £11 13s. 9d.

Spelter.—The market is without change. Business is rather slow, but prices rule fairly steady. Spot and July are quoted here 4.85c. to 4.95c. St. Louis quotes 4.75c. to 4.80c., and London remains unchanged at £22.

Antimony.—The market is easy, and in some respects a shade lower. Hallett's is quoted at 7.25c., while Cookson's is 7c. to 7.25c., and other brands are quoted 6c. to 6.25c.

Nickel.—The usual amount of business is passing and prices are firm, large lots being quoted at 40c. to 45c. and smaller quantities at 50c. to 60c.

Quicksilver.—The market is quiet, with ample stocks and a demand of moderate proportions. Flasks of 76½ lbs. are quoted at $45. The London price has declined to £8.

Tin Plate.—The market is unchanged, with a fair demand reported. Quotations are very firm, on the basis of $3.45 per box for 14 x 20 100-lb. Cokes, f.o.b. mill, equivalent to $3.64, New York. The Welsh market declined 1½ pence, to 11 shillings 1½ pence, f.o.b. Swansea.

HARDWARE.

THE report given in the following pages of the results, so far as they are announced, of the St. Louis conference of the joint committee on the catalogue house problem will, from the engrossing interest of the subject, command the attention of the trade. It is a matter for congratulation that every member of the committee was present, and that after a painstaking consideration of the conditions and questions involved conclusions were harmoniously reached looking to the adoption of practical measures for the benefit of the trade. While most of the deliverances which are given in the somewhat formal statement of the principles which the committee announces as applying to the subject will command the approval of the trade, the attention will rest especially upon the announcement concerning the publication of a digest of catalogue house prices, with a view to influencing the merchants, as such prices reflect a disposition on the part of the manufacturers concerned to meet the views of the jobbers and retailers in regard to their dealings with the catalogue houses. The natural desire on the part of the trade to know in what manner and in what spirit this measure will be carried out cannot be gratified immediately, as it is not intended to prepare such a digest of any of the existing catalogues, but rather to give the manufacturers an opportunity to see that their goods, if represented at all in the catalogues, are quoted at reasonable prices, such as will permit retailers to make a fair profit on such articles. While it is obvious that with a narrow minded or unscrupulous committee such a digest might be a dangerous weapon, with merchants of the high standing of those who constitute the commmittee there is, we believe, the assurance that such a measure will be conservatively carried out, and in a way to free the movement from even the suggestion of bringing undue influence to bear upon manufacturers.

The organization of the committee with two secretaries, representing the jobbing and retailing divisions of the trade, is such as to facilitate communication with the committee, and suggestions and inquiries from merchants and manufacturers will doubtless be welcomed and be given the most careful consideration. In addition to the measures which are outlined by the committee in the platform, as given on another page, our readers who are in close contact with the competition in question and have given serious thought to the principles involved and the methods which may wisely and legitimately be employed will be able to suggest other means and other lines of working by which those which the committee has made public may be efficiently supplemented. In this way and in other ways which will suggest themselves we bespeak for this able and painstaking committee the hearty support of merchants and manufacturers. This may be given in the confidence that the co-operation of the manufacturers, which they are certainly ready to give on all reasonable lines, together with such modifications in the methods or the prices of jobbers and retailers as may be necessary, will result in keeping to the Hardware trade the distribution of the products with which it has to do. We say this in the assurance that the manufacturers and the merchants will be found equal to surmounting the difficulties with which they have to contend.

Condition of Trade.

Questions immediately concerning the summer season are now engaging the attention of the trade. The coming of warm weather, with its relaxing influence and diminished business, introduces the vacation period, which interferes more or less with the regular course of things in store and factory, where there is a perceptible lessening in the pace and a disposition to relax from the strenuous activities of the past months. In this state of things attention is given to the business which comes along, but there is not much in the way of aggressive effort to extend it. The turn of the half year brings to many merchants a summing up of the six months' trade, while to manufacturers there comes an overhauling of plants, whether it be in the way simply of cleaning up or general repairs, or of making in one form or another improvements in manufacturing facilities. With all this there is a good deal doing in the way of plans for the future, as the cessation of the imperative demand for goods gives manufacturers and merchants an opportunity to take a more deliberate outlook than is apt to be the case amid the hurry and pressure of active business. Thus those in charge of large interests are apt to give some of their attention to the consideration of things to be taken up when occasion offers so as to prosecute the business, if not on new lines, at least with a new enterprise and energy. To many a business man, however, who has earned the right to a respite from business cares these plannings and forelookings come in as something of an intrusion and not properly belonging to vacation days. The great mass of workers in all departments of trade are, however, regularly occupied, and the business of the country continues to move along in fair though diminished volume. Notwithstanding the quietness of the present month there is in the trade generally a hopeful feeling. Very much, of course, depends upon the crops, and fortunately they promise well, and the outlook is excellent for general conditions which will favor a good volume of trade. In the matter of prices there is little new to record. Values, while not generally strong, do not show any special weakness, and the trade, avoiding anything like speculative buying, does not hesitate to cover its reasonable requirements. The catalogue house question continues to be an engrossing topic in business circles, and the report of the conference at St. Louis given in the following pages will surely be eagerly perused.

Chicago.

Hardware conditions are practically unchanged since a week ago, though the feeling is a little better and the trade is pleasantly surprised at the small number of price changes made July 1, and the fact that no reductions have as yet been chronicled. Business for July is opening up rather better than ordinarily, and the month of June, just closed, is one that will compare favorably with previous years. Nails and Wire products are weak owing to the competition of mills that are willing to make concessions in order to secure tonnage. Demand for strictly summer lines, such as Ice Cream Freezers, Lawn Mowers, Garden Hose and Fixtures, Screen Doors and Screen Cloth, continues to be excellent and the lateness of the season bids fair to give July a business that belongs normally to June. It is understood that a meeting is to be held next week of the agents and officials of the American Steel & Wire Company, at which will be discussed the situation and decision will be reached as to prices thereafter. No word is received in this market of any change effected by the Cut Nail Association. Prices on Cut Nails are weak, and in case the leading producer of Wire Nails decides to make another reduction Cut Nails will probably follow

suit. No more of the large contracts for Builders' Hardware that are being figured on by Chicago interests have been closed. Contracts for the following buildings are still to be let: Memphis Trust Company, Memphis, Tenn.; Continental Trust Company, Baltimore; John Wanamaker, Philadelphia; Thomas Orchestral Building, Chicago; Otto Young's building, called the Heyworth Building, and Marshall Field's warehouse, all of which are in the hands of D. H. Burnham & Co., Chicago, architects; nor on the Strong and the Chicago Savings Bank Building, of which Holabird & Roche are architects; the Rector Building, Jarvis Hunt, architect; the Northern Trust Building, and Victor Lawson's Newspaper Building, for neither of which an architect has yet been announced. These are all very large buildings and the Hardware contracts will be noteworthy ones. There is every probability that prices on the cheaper grades of Locks and doubtless other competitive lines in Builders' Hardware will be reduced at a meeting of the five leading producers which is to be held shortly. Black and Galvanized Sheets are in only fair demand, with prices weak. Nuts, Bolts, Screws and allied lines are none too strong in price and the demand is hardly satisfactory.

Philadelphia.

SUPPLEE HARDWARE COMPANY. — The inertia which usually manifests itself in business circles from the last days of June until after the 10th of July has prominently shown itself in trade circles during the past week, and everything is now very quiet; indeed, there seems to be more interest shown by the average person in regard to the political convention to be held in St. Louis during this week than there appears to be in mercantile interests. The midsummer quiet is further reduced to a minimum by the vacation period of both salesmen and "house force."

The record for the past six months should not be nearly so disheartening as many of the agitators would like to indicate in conversation as well as their reports to some of the daily papers; and while throughout the country we have had some serious surrounding conditions to contend with, such as the unusually severe winter, snow, rains and floods, our country at large is certainly in the field of battle for trade. On the opening of trade, however, we look for quite a stimulus, owing to the good outlook for wheat and corn crops and the cotton prospects.

In connection with the above the financial condition of the country has hardly ever been better, we think, in regard to being prepared for all the money required to harvest and market the crops, which will find ready sales. The increase of our population, together with the present standard of high wages throughout the country, has increased our own consumption quite a percentage over what it was eight years ago, this having prevented as large an export trade of farm products the last year, and from present appearances there will be a larger demand for our agricultural products the present year, if all are as lavish in the use of the same as in the past, from the fact that the immense flow of immigration still continues. The trifle it requires to bring a person across the ocean has been a great stimulus in this direction. It is admitted, however, that many of those coming across have been compelled to return, as not coming up to the very modest immigration laws which they encounter upon their arrival. There certainly will be, from all appearances, very great competition in the near future for work, whether to the advantage or disadvantage of the day laborers time alone can develop.

Omaha.

LEE-GLASS-ANDREESEN HARDWARE COMPANY.—The splendid growing weather experienced since our last report, and the consequent improved crop prospects, still further increase the confidence expressed by producers that a heavy yield of grains of all kinds is almost assured. These favorable conditions exert a powerful influence on business at large. Good crops are always desirable, and with another abundant harvest the business men and producers of this section of the country will be entirely satisfied. As far as fluctuations in prices are concerned, the only change of importance has been the anticipated decline in Wire and Nails, otherwise the market is featureless, and most lines appear to occupy a fairly firm position.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—The market, of course, reflects conditions prevailing elsewhere. There is an excellent shop demand for immediate consumption, as many buildings are being erected and more or less public work is being pushed forward. Financially, collections are fair, and the banks are unusually well supplied with money, with no prospect of scarcity at least until late in the fall.

The crop outlook is encouraging. Wheat cutting is now progressing in this neighborhood, and those who left their fields alone and were not so hasty as to plow them under earlier in the season are much gratified at the unexpectedly good yield. Potatoes, one of our leading crops, in this immediate region, are unfavorably affected by the scant rainfall. Fruit, poultry and farm produce of all kinds, however, are in good supply and at very excellent prices. There seems to be no disturbing surplus of any kind to give the farmer a chance to grumble at the returns for his labor this year at least.

Railroad earnings show a slight increase in various quarters, which is a hopeful sign, while the columns of "Help Wanted" in the advertising pages of the papers are still much more drawn out than those headed "Situations Wanted." With all these elements on which to base confidence, there is little discouragement on the part of anybody unless it be the speculator or promoter. This is not a good season for new or wildcat schemes.

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—June was better than expected. Salesmen taking vacations will reduce the volume of July business. General crop prospects in this section are very good. Immediate buying is from hand to mouth.

A large number of merchants are visiting the World's Fair. Few are buying goods. Our sister cities need not worry on this account. Jobbers here are glad to meet their customers and show them through their establishments. When a want list is produced we are somewhat surprised. Last week we had the pleasure of meeting the jobbers and retailers who came here to attend the meeting of the wholesalers' and retailers' Joint Committee to consider the catalogue house question. We, however, did not see as much of these gentlemen as we hoped, as they attended strictly to business and devoted very little time to visiting and sightseeing.

St. Louis just now has gone "pleasure mad." It takes a strong minded and well balanced man or woman not to be demoralized by the attractions of the World's Fair and the seductive allurements of the "Pike." Every large business house here has been confronted with the problem of adding more trunk lines to its house telephone service, or in some manner regulating the use of house telephones by employees in making their engagements. Nobody stays at home. Everybody is seeking sensations. When it is all over we will force a balance by inserting experience on the credit side of the ledger.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—The trade situation in this section is in a very satisfactory shape. Notwithstanding the fact that a good many traveling men are visiting the World's Fair and otherwise taking vacations, the orders received are plentiful and cover a general assortment of goods, and the total sales for the month of June, somewhat to our surprise, show an increase over the same month last year. There is considerable life and snap to business for midsummer, and a great many of the shrewdest retailers in the South are now buying more liberally than for several months past, and are placing orders both for seasonable goods and for their fall and winter requirements. The Hardware jobbers of this city, and, in fact, throughout the South, are rather optimistic over the situation and are making arrangements to handle a large volume of business during the summer and fall months. We do not believe that the election will affect business to any noticeable extent, and less

attention is being paid to it in the South than ever known before.

The crop conditions are simply splendid, and the weather has been all that could be asked for. The wheat crop in Middle Tennessee is the best for three years past. The corn crop and hay crop both promise to be unusually good, and the cotton crop throughout the South bids fair to be an excellent one.

The principal topic of conversation among both jobbers and retailers is the catalogue house question. There is no doubt that this has gotten to be quite a serious matter all over the country, and the competition it is bringing about is both unpleasant and unprofitable. The committee which met in St. Louis last week is a step in the right direction, and will no doubt do a great deal toward remedying this unnecessary evil.

Cleveland.

THE W. BINGHAM COMPANY.—We have nothing special to report at the present time. Considering the time of year, Cleveland Hardware jobbers are having a very fair trade. Salesmen are still on their travels throughout the country, soliciting and picking up numerous orders. However, vacation season is at hand, and we expect the month of July will be moderately quiet. There have been many merchant orders placed for fall goods and they are still coming in. Sorting up orders in general lines are numerous, but there is a slackness of orders coming from the manufacturers, as at this time of the year many of the mills are shut down for repairs and general shop cleaning, getting ready for the fall campaign. From the reports we get from our salesmen the country merchants are not overstocked with goods, as they have been following a safe and conservative course in buying, and when the fall opens up they will want many goods in all lines, Prices are steady and even. Such being the case, there is no incentive for any one to buy heavily. On the whole trade is quite satisfactory for this time of the year.

Baltimore.

CARLIN & FULTON.—The absorbing topics at the present time are hot weather and summer vacations, and even political platforms are of minor consideration. It is not the season when we expect to be very busy, still orders, while not heavy, are frequent and in the aggregate amount to considerable. The farming community is generally busy with the crops, and locally the work of rebuilding our city is giving employment to thousands.

When in former years the differences in the doctrines of the great political parties of our country were very great, and the success of one or the other meant a decided change in the policy of government, there was some reason to couple a Presidential year with dull times; but now, when the great issues have disappeared and when both parties are almost united on the question of finance and there is little probability of any decided revision of the tariff by either party, it seems unreasonable to allow business to be at all affected by the selection of a President, and we do not believe that trade will be as greatly influenced when the fall season arrives as has been the case in former years. Successful harvests mean good business, no matter who occupies the Presidential chair, and the finances of this country are now on too stable a basis to be seriously affected by the success or defeat of either party at the coming election.

NOTES ON PRICES.

Wire Nails.—The market at the points of largest distribution shows irregularity, caused, it is claimed, by quotations made by independent mills, which are in some cases met. This has occurred in former periods of dullness, and the market has righted itself when demand became larger. No change in regular quotations has been made by the leading interest. Demand is light, while stocks have accumulated at mill to some extent. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carload lots	$1.90
Retailers, carload lots	1.95
Retailers, less than carload lots	2.05

New York.—Local business is up to expectations of jobbers for the season. Quotations are as follows: Single carloads, $2.10; small lots from store, $2.20.

Chicago, by Telegraph.—The leading producer does not acknowledge that any reduction in price is being made, although buyers are not at all backward about claiming that suitable reductions are being named by independents and met by the American Steel & Wire Company. Business is light and we repeat last week's quotations, f.o.b. Chicago: Jobbers, carload lots, $2.05; retailers, car lots, $2.10; retailers, less than car lots, $2.20; though these prices are being shaded by independents and met when necessary. Coated Nails are still quoted at $1.55 to $1.60 per keg to dealers or large consumers, delivered, Chicago.

Pittsburgh.—The usual summer dullness is now being severely felt in the Wire Nail trade, new demand being very light, and stocks at the mills are heavier than for some time. During this month several of the leading Wire Nail mills in the Pittsburgh district will be closed the greater part of the month for inventory and repairs. The dull demand, together with the fact that stocks are heavy, has brought about some cutting in prices, which, however, is not yet very serious. It is generally expected that a reduction in price of Wire Nails may be announced before very long. Concessions in prices are being made at certain points of delivery, where delivered prices do not always represent full freight rates. We have made no change in our prices and continue to quote Wire Nails at $1.90 in carloads to jobbers, $1.95 in carloads to retailers and $2 to $2.05 in small lots to retailers, all f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in 10 days, plus freight to point of delivery.

Cut Nails.—At the meeting of the Cut Nail Association, held on June 29, ruling prices were reaffirmed. Notwithstanding this action on the part of the manufacturers, the Western market in particular is reported as being weak and irregular, and some unevenness is reported in the East. Regular quotations are as follows for Steel and Iron Nails f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Base.
Jobbers, carload lots	$1.75
Jobbers, less than carloads	1.80
Retailers, less than carloads	1.90

New York.—Demand is steady, but not at all heavy. Regular quotations are as follows: Carloads on dock, $1.89½; less than carloads on dock, $1.97½; small lots from store, $2.05.

Chicago, by Telegraph.—No word has been received in this market of a change in the price of Cut Nails, and it is very evident that business is being placed on the basis of $1.65, Pittsburgh, carload lots, with claims of lower prices by buyers of larger lots.

Pittsburgh.—July is always the dullest month of the year in the Cut Nail trade, and this month will be no exception. Demand is light and there is more or less cutting in prices. We quote Steel and Iron Cut Nails at $1.70, base, in carloads, but in exceptional cases $1.65 is being made. Less than carload lots are $1.75, all f.o.b. mill, terms 60 days, less 2 per cent. off in 10 days.

Barb Wire.—During the month of July demand is usually light, and the present month will probably be no exception to the rule. Shading of prices is reported to some points of delivery, though no official change in quotations has been made by the largest interest. Quotations in general are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$2.20	$2.50
Retailers, carload lots	2.25	2.55
Retailers, less than carload lots	2.35	2.65

Chicago, by Telegraph.—In the absence of any trading to make a market, we repeat last week's quotations, with the explanation that much lower prices are being named to buyers of large lots for nearby delivery. Prices are still nominally as follows: Car lots to jobbers, Painted Wire, $2.35; Galvanized, $2.65. To retailers, car lots, Painted, $2.40; Galvanized, $2.70. Retailers, less than car lots, Painted, $2.50; Galvanized, $2.80. Staples to jobbers, $2.25 for Plain; $2.60 for Galvanized. Staples

to retailers, 5 cents higher. These prices are not being maintained absolutely.

Pittsburgh.—New business is light and promises to continue so during this month. This condition will be taken advantage of by the mills to shut down for repairs and inventory. There is more or less shading in prices, especially to extreme Western and Southern points of delivery. Prices, which are being more or less shaded, are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carloads	$2.20	$250
Retailers, carloads	2.25	2.55
Less than carloads	2.35	2.65

Smooth Fence Wire.—Activity in competition resulting from the falling off in demand has led to considerable unevenness in prices, not an unusual occurrence during the period of summer dullness. Official quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.80
Retailers, carloads	1.85
Less than carloads	1.95

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base.	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	40	.45	.55	.65	1.05	1.15

Chicago, by Telegraph.—Competition in this product is asserting itself vigorously. The long period in which the demand has exceeded the supply has evidently passed, and now mills are looking out for business at whatever reductions below the official prices of the leading producer are necessary to land the desired order or contract. The low prices that are being named are largely for quick delivery, because independent mills have reached a point where they are running low and are willing to make concessions to keep their plants running full force. This is not at all unusual this season of the year and may be followed by another period of activity, in which the demand will exceed the supply. These official prices are now being made, as follows: Smooth Fence Wire, Nos. 6 to 9, $1.95 per 100 pounds, in carload lots to jobbers, f.o.b. Chicago; $2 per 100 pounds to retailers, and $2.10 in less than car lots. How much lower prices can be obtained on large desirable specifications is difficult to determine at this writing.

Pittsburgh.—There is practically no new tonnage being placed and the mills are going after orders vigorously, with the result that there is considerable unevenness in prices. It is generally expected that there will be a reduction in prices of Wire before very long. We quote as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days: Plain Wire, $1.80, base, for Nos. 6 to 9, in carloads to jobbers, and $1.95 to $2 in small lots to retailers; Galvanized, 30 cents extra for Nos. 6 to 14.

Glass.—The committee appointed at the Niagara Falls meeting of the Window Glass manufacturers has been devising a plan of organization, which it is understood will be sent to all Window Glass manufacturers at once, thus giving them time to consider the plan and to accept or reject it previous to the time of the meeting to be held at Put-in-Bay on July 20. Some plants of the American Window Glass Company are reported as still being in operation, but with this exception all factories are closed. The past fire is not regarded as having been satisfactory to manufacturers, workmen or jobbers.

Oils.—*Linseed Oil.*—The market shows a somewhat firmer tone, with no change in quotations, owing to a stronger Seed market. Demand continues moderate and crushers are reported as declining orders for delivery beyond this month at present prices. Quotations are as follows: City Raw, in lots of five barrels or more, 39 cents per gallon; in lots of less than five barrels, 40 cents per gallon; State and Western Raw, 37 to 38 cents per gallon. Boiled Oil, the usual 2 cents advance per gallon over Raw.

Spirits Turpentine.—Demand continues light at this point, with prices unchanged. Quotations are as follows, in this city, according to quantity: Oil barrels, 56 to 56½ cents; machine made barrels, 56½ to 57 cents.

U. M. C. GUARANTEED METALLIC CARTRIDGES.

THE UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn., and 313-315 Broadway, New York, is directing the attention of the trade to its unqualified guarantee of U. M. C. Metallic Ammunition for rifles and pistols, loaded with both black and smokeless powders. It has been the practice to guarantee its Metallic Cartridges loaded with black powder for the past 20 years, to which it now adds those loaded with smokeless powder. In addition to this warranty, it also guarantees all standard Firearms of reputable manufacturers when used with its Rifle and Pistol Ammunition. Its smokeless powders, made according to thoroughly tested formulas, have been so standardized and perfected as to justify it in thus broadly guaranteeing its product, the guarantee labels being found on each box of U. M. C. Cartridges as now shipped.

RHODE ISLAND HARDWARE DEALERS' ASSOCIATION.

THE RHODE ISLAND HARDWARE DEALERS' ASSOCIATION held its annual meeting at Providence June 22, when these officers were elected: President, E. A. Loomis, the Belcher & Loomis Hardware Company, Providence; vice-president, W. A. Bosworth, Bosworth & Aspinwall, Providence; secretary, F. T. Kelley, Barker, Chadsey & Co., Providence; treasurer, C. H. Angell, Union Hardware & Electric Supply Company, Providence; Executive Committee, these officers and Frank Duffy, Duffy Bros. & Co., Pawtucket; John McClinchey, Olneyville, and George P. Peterson, the George P. Peterson Company, Providence. A dinner was held, where the good fellowship which characterizes the association was much in evidence.

C. E. JENNINGS & CO.'S NEW CATALOGUE.

C. E. JENNINGS & CO., 42 Murray street, New York, manufacturers of Mechanics' Tools and Hardware Specialties, such as Saws, Chisels, Augers, Bits, &c., have just issued a new illustrated descriptive catalogue in stiff covers, containing 146 pages, each 11 x 8 inches. There are many new goods shown, either in the way of new styles, combinations of sets, methods of putting up, &c. This applies to Short Chisels in sets, of which there are several pages; Diamond Back Chisels, Saws and similar goods. They have added an adjustable Hack Saw Frame to take as long as 14-inch saw blades. Another line sold under their brand is additional styles of Forged Tinners' Snips, both Philadelphia and German patterns. At the back are 11 pages of the product of the Southington Cutlery Company, whose selling agents they are and of which C. E. Jennings is president. There are shown complete lines of Steel and Iron Squares, Wood Screws, Stove, Sink and Tire Bolts and Curry Combs.

ENCOURAGING INVENTIVE FACULTIES.

THOMAS COLDWELL, president of the Coldwell Lawn Mower Company, Newburgh, N. Y., himself a conspicuous inventor, for the purpose of stimulating the inventive genius of young men, six months ago offered a group of six cash prizes to the students in the Manual Training School in that city. There were 14 competitions in all submitted. The winner of the first prize, E. T. Moore, also won the fourth prize, Mr. Moore submitting improvements on an electric rheostat and electric bell system respectively. The fifth and sixth prizes, for a spindle design and paper cutter for use in the drafting room, were won by Joseph Taylor, thus fulfilling Mr. Coldwell's prediction that an individual who invents an article or originates a particularly good idea is likely to follow it with others.

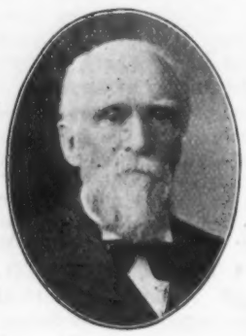
The St. Louis Conference on Catalogue House Question.

AS noted in our last issue, the joint committee representing the National Hardware Association, National Retail Hardware Dealers' Association and the Southern Hardware Jobbers' Association met in St. Louis on Monday, Tuesday, Wednesday and Thursday of last week. The interest taken in this matter by those officially charged with the responsibility of considering what is to be done in the premises is indicated in the fact that every member of the committee was present and gave close and careful attention to the subject under consideration. .

S. NORVELL, Chairman.

The Joint Committee.

The joint committee was constituted as follows: Of the NATIONAL HARDWARE ASSOCIATION: S. NORVELL, St. Louis, Mo., *Chairman;* R. A. KIRK, St. Paul, Minn.; W. S. WRIGHT, Omaha, Neb.; S. A. BIGELOW, Boston, and T. JAMES FERNLEY, Philadelphia; Of the SOUTHERN HARDWARE JOBBERS' ASSOCIATION: R. M. DUDLEY, Nashville, Tenn.; Of the NATIONAL RETAIL HARDWARE DEALERS' ASSOCIATION: W. P. BOGARDUS, Mt. Vernon, Ohio; M. L. COREY, Argos, Ind.; E. M. BUSH, Evansville, Ind.; S. R. MILES, Mason City, Iowa, and T. FRANK IRELAND, Belding, Mich. This committee will be recognized as one specially qualified to deal with the subject in a broad and practical manner, in view of the representative character of the delegates from the various associations.



R. A. KIRK.

Formulating Principles of Action.

It was, fortunately, unnecessary for the committee to spend much time in obtaining information in regard to the character of the competition with which the trade is confronted and for protection against which the movement has been inaugurated. The discussion of the subject by the trade at large since it was taken up in our columns in April last, and consequently made to be the principal topic considered at the conventions held in Atlanta, has caused many merchants and manufacturers to give it a more careful consideration than ever before. The members of the committee, too, especially since their appointment to the very responsible duties which rest upon them, have given much thought and study to the problems involved and have been forming opinions and gathering facts a knowledge of which is essential to wise action. The committee accordingly met with a thorough familiarity with the conditions for which a remedy is desired, and their principal work consisted in determining the lines on which they should work and the manner in which their plans should be carried out. In view of the complexity and difficulty of the problem a good deal of time was devoted to a consideration of the principles which apply in the premises and the manner in which these should be put into effect. As a result of these deliberations a statement of these principles, somewhat in the form of a platform, was adopted as indicating the lines on which the work should be carried out. A summary of the more important of these principles has been prepared by the committee for announcement to the trade at large, and is given below. The committee refrain from making public all their decisions and plans, as this would, in their judgment, interfere with the success of the movement and with some of the measures which they hope to put into effect.

S. A. BIGELOW.

Permanent Organization.

An important action by the conference was the formation of a permanent organization for the continuance of this catalogue house work under the name of the WHOLESALE AND RETAIL HARDWARE JOINT COMMITTEE. All members of the three committees taking part in this conference became members of this permanent joint committee, which was organized by the election of

S. NORVELL, St. Louis, Mo., chairman.

T. JAMES FERNLEY, Philadelphia, Pa., general secretary.

T. JAMES FERNLEY.

M. L. COREY, Argos, Ind., secretary for the retail Hardware trade, and an Executive Committee of six, composed of the gentlemen mentioned above, and also W. P. BOGARDUS, Mt. Vernon, Ohio; R. M. DUDLEY, Nashville, Tenn.; C. B. CARTER, Knoxville, Tenn.

It is expected that the work will be taken up at once in the various associations with a view to carrying out the plans of the committee. In this way it is hoped that something can be done to secure the efficient co-operation of the jobbing trade through their salesmen and buyers, as well as of the retail merchants, who are more directly in contact with the disturbing influences under consideration. Having two secretaries—M. L. Corey representing especially the retail merchants and T. J. Fernley representing the wholesale houses—facilities are given for correspondence relating to these two great branches of the trade. Constituted as the joint committee is of representatives from both the jobbers and retailers, with a secretary representing each of these great classes, it has an admirable organization, and the trade may anticipate effective work. The appointment of these secretaries, too, may be taken as an invitation to the trade to communicate with them any facts or suggestions which bear upon the matter in hand.

The Joint Committee's Statement of Principles.

We give below the synopsis of the principles adopted by the committee which are given out to the trade at large for their guidance and information:

SYSTEM OF DISTRIBUTION.—The present established system of distributing goods from the manufacturer to the jobber, from the jobber to the retailer and from the retailer to the consumer is the most economical and best serves the interest of all classes of our people, and, therefore, must be maintained.

R. M. DUDLEY.

PROFITS FOR JOBBERS AND RETAILERS.—The manufacturer, the jobber and the retailer are entitled to a fair and reasonable profit, and any system of merchandising that injures either manufacturer, jobber or retailer should be recognized as an injury to all.

CATALOGUE HOUSE METHODS INJURIOUS TO THE TRADE.—The present conditions that exist as a result of the methods of the catalogue houses in marketing certain well-known manufacturers' brands have greatly injured the jobbing and retail Hardware trade of this country, and if such methods are to be encouraged it means the eventual elimination of the Hardware jobber and retailer.

CATALOGUE HOUSE PRICES.—The catalogue house system of making prices is recognized as being such that a few catalogue houses doing an infinitesimal part of the total Hardware business of the country can make prices for the retail Hardware trade of the whole country, regardless of consequences.

DEMORALIZATION OF PRICES.—It is recognized that the great injury the catalogue houses are to the trade is not the result of their actual sales, but of their general demoralization of prices in the Hardware line in order to influence sentiment and sales on other goods on which they make inordinate profits.

W. P. BOGARDUS.

MUTUAL DEPENDENCE.—It is recognized that neither manufacturer, jobber nor retailer can stand alone. It is believed there is a community of interests. It is the duty of the manufacturer to protect the jobber. It is the duty of the jobber to protect the retailer.

CONTROL OF PRICES.—The Hardware trade of this country cheerfully accepts the control of many manufacturers in the sale of their goods, the object of such control being to prevent the demoralization of prices on such lines, and it is maintained that the same principles should be applied to catalogue houses for the protection of the retail trade.

DUTY OF MANUFACTURERS.—It is not demanded that any one refuse to sell catalogue houses, but it is emphasized that if any manufacturers or others insist upon selling this class of trade it is their duty to the jobbers and the retailers to see that the interests of the jobbers and retailers selling such goods are protected.

TREATMENT OF MANUFACTURERS.—Attention is called to the fact that the only method by which jobbers and retailers can show a practical and substantial appreciation of the good will of those manufacturers who are willing to exert themselves in the protection of the interests of the retail dealers is by pushing the sale of their goods.

DIGEST OF CATALOGUE HOUSE PRICES.—With the desire of placing in the hands of the jobbers and retailers a simple and ready reference of lines of goods and prices shown in the catalogues of prominent catalogue houses it is proposed to compile a digest of the prices published in the Hardware line by the best known catalogue houses, together with the names of the brands. In cases where the descriptions of the goods offered for sale are purposely misleading, the correct names, numbers and other description of the goods will be given.

DEALERS REQUESTED TO CONSULT DIGEST.—It is recommended that the buyers of both jobbers and retailers refer to this digest whenever placing their orders for the lines therein mentioned. It is believed that this digest will concentrate the attention of all intelligent buyers of both jobbers and retailers upon such goods as catalogue houses are permitted to use as bait and leaders, and that as a result of such concentration of attention manufacturers will find they will lose more profit on the larger percentage of their sales made through jobbers and retailers than they can possibly gain by not controlling the prices of the catalogue houses.

M. L. COREY.

E. M. BUSH

DIGEST WILL REFER TO FUTURE CATALOGUES.—As a number of manufacturers whose lines of goods appear in current catalogues have given their assurance that either their lines will not be in future catalogues or that there will be a radical change in many of the prices quoted in such catalogues, it has been decided, in justice and fairness to such manufacturers, that this digest will cover only catalogues issued after this date.

S. R. MILES.

T. FRANK IRELAND.

THE PAST TO BE OVERLOOKED.—It was the sense of the conference that by-gones would be by-gones; that no manufacturer, jobber or retailer should be criticised for his action in connection with catalogue houses in the past. It was recognized that jobbers' and retailers' associations have been working on this question for a number of years. There was no desire to emphasize any credit that might be due them for their part of the work.

ASSOCIATION WORK.—It was thought best that this work be carried on by associations and through association membership. All jobbers and retailers not now connected with associations will be welcome to join the association ranks and assist in continuing this work.

WHAT IS BEING DONE BY INDEPENDENT JOBBERS.

WHILE the association jobbers and retailers are working on the lines indicated above, it is gratifying to note that efforts looking to the same end are being made by the independent jobbers, the great houses who are not connected with any association. Some of them have been communicating widely with manufacturers with a view to influencing them in the adoption of a course of action which will protect the trade against the evils of catalogue house competition, and to draw out from them an expression of opinion as to the policy to be pursued. These letters emphasize the fact that the retail trade is the ultimate distributer of the manufacturer's goods and should continue to be so, with a probability that the catalogue house will never sell more than a small proportion of the manufacturers' products. It is, therefore, they argue the part not only of wisdom, but of absolute business policy, that the existing channels of distribution should be protected even if at the expense of the business transacted with the catalogue houses.

Three Methods Suggested

One of these great jobbing houses suggests three methods by which the manufacturers can maintain the present channels of distribution and thus serve the interests of retailers and jobbers as well as their own:

1. That they refuse to sell the catalogue house trade.
2. Should they be unwilling to do this that they sell the catalogue houses at quite a differential over the price to jobbers, in fact, putting the catalogue houses on the retail basis, where they belong.
3. That they insist that the catalogue houses shall print such prices as will enable the retailer to make a living profit in competition with such prices.

This jobbing house further reminds manufacturers that they do not perhaps realize the antagonism with which retailers regard those brands of goods which are illustrated in the books of the catalogue houses, and that the manufacturer cannot afford to disregard that feeling. They make the further point that as a matter

of harmony and good feeling manufacturers should take immediate steps to remedy the situation as above suggested.

Letter from Hibbard, Spencer, Bartlett & Co.

The following letter from Hibbard, Spencer, Bartlett & Co. is of interest as illustrating the lines on which some at least of the independent jobbers are working and emphasizing the principle that manufacturers in the matter of prices should treat the catalogue houses as retailers. It will also be noted that it records the general disposition on the part of manufacturers to act as suggested, with a view to the protection of jobbers and retailers:

CHICAGO, ILL., June 28, 1904.

To the Editor: You ask in effect what attitude we take toward the manufacturers in discussing their selling of goods to catalogue houses.

Realizing that there are many interests to be considered, we are simply asking that the manufacturers adopt a policy which shall result in justice to themselves, to jobbers and to retailers. The makers of goods desire to market their product through channels which shall prove efficient and permanent. Some of them in the past have been attracted by large orders from retail houses (the catalogue houses, of course, belong on the retail list) which will be less attractive in the future if they decide to encourage the carrying of stocks throughout the country. Neither the retailer nor the jobber can justly find any fault if manufacturers sell the catalogue houses at the same prices they sell other retail houses, provided the catalogue houses do not demoralize the markets of the country with their low advertised prices.

Manufacturers will eventually be obliged to choose between having their goods handled at so small a margin of profit by both wholesale and country retail houses that all dealers will avoid their purchase and sale, and having them profitably carried in all the stocks from which kindred goods are sold.

We are suggesting that they make this choice now when the whoile country has the matter under consideration. The manufacturers will do what they deem wise and the jobbers and retailers will carefully watch the course they pursue. The manufacturers of this country, as a rule, are desirous of cultivating the trade of the million rather than of the few, not only because it is for their own interest, but because they deem it just and right. We have already received letters from a large number of manufacturers, and, with few exceptions, their writers are in perfect accord with the wishes of jobbers and retailers. In our opinion there will be no thought of compulsory measures on the part of any one. The manufacturers and jobbers alike will declare by their word or their action the position they are taking and business will move along in the channels which these positions will form. HIBBARD, SPENCER, BARTLETT & CO.

Manufacturers' Willingness to Co-operate.

The intimation given above in regard to the willingness of manufacturers to meet the views of the regular distributors agrees with the advices received from another prominent house, in which they say that manufacturers as a rule are willing to co-operate in the movement for the defense of the trade, and that some of them have remedied the situation already either by raising their price to the catalogue houses, or by refusing to sell them, or by insisting that they shall print higher prices in the next issue of their catalogues. In view of this disposition a hopeful view is taken of the effect of the efforts which are being made.

HOW A RETAILER PROTECTS HIMSELF AGAINST THE CATALOGUE HOUSES.

THE following interesting communication is from a merchant in Maryland. It shows the manner in which a wideawake retailer is successfully meeting the catalogue houses without waiting for the protection which may be given as a result of the organized efforts referred to in the preceding columns. It may be that our correspondent's location does not bring him into as close contact with catalogue house competition as are the merchants in the Western States, but the enterprise and energy displayed by him are qualities that command success in any part of the country. While all may not see their way clear to working on precisely the lines which he follows, the narrative of his experience cannot but be suggestive:

To the Editor: The fight that is now on between the catalogue houses, jobbers and retailers in all lines is studied and read by the merchant and consumer as never before. The question is a far reaching one, and so far no one seems to offer any plan that will bring a proper solution of the many obstacles that are in the way.

The Jobbers.

From the jobbers' view of the question, so far as the writer has been able to observe, they seem to think that the catalogue house is ruinous to the retailer and that they must do something to protect the retailer. As a retailer, we take the other view and believe it is up to the jobber first to take care of himself, so that he can protect the retailer against the catalogue house. If he cannot do this, how can he expect the retailer to buy from him? The fact is, in many lines the catalogue house is put on the same base as the jobber and is willing to name the jobber's price to the consumer, thus cutting out the small home retail dealer. In the Hardware line the small jobber is causing more trouble to the retail Hardwareman than the catalogue house, for the reason that many of the leading lines the manufacturer will not sell the catalogue house, but sells the small jobber. The small jobber cannot sell the Hardware trade; therefore he is compelled to call on contractors and planing mills, offering them goods at jobbers' prices; this puts them on the same basis as the home merchant, making it doubly hard for the home merchant, as he has both catalogue and jobbers to fight.

Competition of Jobbers

Therefore, we feel that until the jobbers' association can place the small jobber on a legitimate basis and keep him where he belongs they are not in condition to dictate to the retail trade.

Buying from the Manufacturer.

The leading Hardware stores are buying more and more every year from the manufacturer in order to meet the competition, placing them in many cases on the jobber's list. This has been of great advantage to the retailer and has placed him almost equal with the jobber, giving him a chance to extend his trade on many lines that will more than offset what the catalogue house is successful in obtaining. We have been in the Hardware business for the past 20 years and at one time bought all our goods from the jobbers, but finding that we could not hold the trade, on account of price, when compared with the catalogue and department stores, were led to make a change, and some five years ago we commenced to buy all leading lines from the manufacturer, adopting such lines as we could buy from the independent manufacturers. As a result to-day our trade is larger and better than ever before.

Increased Purchases from Manufacturers

Few persons are inclined to send away for their goods so long as you treat them fairly and can name a satisfactory price. The catalogue as published by the catalogue houses is of great benefit to the merchant in some ways. It helps to keep him posted as to what goods can be sold at, setting forth a schedule of prices on lines that are often very difficult to obtain, describing the goods in such a way that he can write his own advertising matter, assisting him in ordering, &c.

Use of Catalogue House Catalogues

Jobber's Catalogue.

The jobber's catalogue, as a rule, is very little benefit to the dealer; prices are very seldom named, and in many cases manufacturers' names are not given. It will

not be long until the plan of naming prices and sending out catalogues to the merchants will be largely used by the leading jobbers. Some few are using this plan now who have extended their line beyond the Hardware business and have almost department stores. This plan may not cheapen the goods very much, but the merchant is better posted and can order goods when it suits him best.

Wholesale Catalogue Houses

All jobbers are glad to get mail orders; it saves them time and expense. On the other hand, many of the manufacturers are only too glad to name a 5 or 10 per cent. rebate if you will adopt their line, contracting with them for a year at a time, thus saving the expense of salesmen. This is often preferred by the manufacturer, as it keeps him in close touch with the consumer, running smaller accounts and being better able to judge how his goods are selling, having more control of prices, avoiding ofttimes a cut that is not necessary.

Mail Orders

Wherever we have been able to contract with the manufacturers for their lines of goods in sufficient quantities we have no trouble to meet the catalogue or jobber's price. Every year it is becoming harder for the jobbers to make contracts with the manufacturers that will enable them to sell at a profit to the best Hardware trade at prices below the catalogue house. This is shown very clearly from the fact that they enter into all kinds of combinations with the manufacturers in order to protect themselves and keep the price to a paying basis. Therefore, as stated before, it is the duty of the jobber to protect himself as against the catalogue house; and unless he can do this he cannot expect the Hardware merchant to buy from him so long as the independent manufacturer will sell goods to the retail trade.

Retailers Buying from Jobbers

The Retailer's Advertising.

The Hardware merchant, in order to keep to the front, must advertise largely, not so much the staple and every day goods, but lines that he has under his control and that his competitor cannot obtain.

The most successful way to advertise that we have ever adopted is to advertise largely in your county and daily papers. Buy a space of two columns in your leading papers for six months; use it three months in the spring and three months in the fall; change it every week and only advertise one line at a time; put in cuts of what you are advertising, set forth all the leading points, state nothing but facts, name prices only in a general way, leaving the trade under the impression you have just what they want, and in order to know more about it they must come to see you or write for more information. This will bring them to your store and lead you to find out parties that are contemplating buying, and then you will have to do your part to make the sale or contract for future delivery.

Suggestions for Newspaper Advertising

Hand Bills.

In order to reach the trade that cannot be reached through the county and daily papers have the editors print a thousand of more handbills, same as advertised by you in the papers. Have these close at hand in the store, instructing the clerks to wrap up same in all packages, and at the same time mailing them throughout your trade. In a short time you will notice sales and inquiries coming from parties you never thought of. The above plan has proved very successful among farmers who buy from catalogue houses, provided the merchant is fully posted on the line he is selling and advertising and can show the goods to an advantage, explaining the many good qualities of his goods, leaving the farmer or mechanic to judge for himself as to the many advantages you are offering.

Adopt These Rules:

Buy all goods you can direct.
Make all rebates possible.
Save all discounts and freights.
Sell for cash, or, if time be given, add at least 5 per cent.
Advertise largely the goods under your control.
Make close price on leading goods.
Never dispute a price with a customer unless you can back it up with facts.
Put in as many specialties as you can successfully handle.
Do not overstock or overbuy.
Study your lines so you can talk them intelligently to the customer.
Make your store attractive.
Be polite and agreeable.
Never think it trouble to show goods.

And our word for it, catalogue and department stores will not secure much of your trade.

A Hardware Retailer.

TRADE ITEMS.

Evart Tool Company, Limited, Evart, Mich, announces that its new factory is now in operation, and that a complete and excellent line of Lumbering Tools is thus offered to the trade. The plant is equipped with the latest improved machinery, while the workmen are referred to as men of long experience in this line of manufacture. Just at present the company has only a circular showing its line, but expects soon to issue a catalogue showing the full assortment.

Goodell-Pratt Company, manufacturers of Mechanics' Tools, Greenfield, Mass., has recently purchased the Iron Level business formerly carried on by C. F. Richardson & Son, Athol, Mass. The Goodell Company now has this department running nicely in its plant at Greenfield, has brought it up to date, and is turning out a full and complete line of the Levels.

The New Departure Mfg. Company, Bristol, Conn., has established a branch plant at Berlin, Germany, where factory space has been leased for the purpose and considerable machinery has been installed. It is expected that the new plant will begin operations by the end of the summer. The company will conduct a continental advertising agency at Berlin, under the direction of Dewitt Page, advertising agent of the company, and will cover every country in Europe. The company has conducted selling departments at London and Copenhagen for some time and is well established for the inauguration of the Berlin business. General Manager Albert F. Rockwell has gone to Europe to inspect the Berlin plant and to look after other business in connection with it.

E. P. Stoughton, vice-president of the Millers Falls Company, in charge of its New York house, sailed for Europe Saturday, July 2, on the Hamburg liner "Patricia," accompanied by his daughter. They will visit Great Britain and interesting portions of the Continent, principally for pleasure, although Mr. Stoughton will visit some of the many business friends of the company. They expect to return about September 1.

The second annual picnic and outing of the Iowa Hardware dealers will be held in Mason City and Clear Lake, Iowa, on July 14 and 15. Arrangements have been made by the local Hardware dealers and traveling salesmen in that territory, as a result of which a most enjoyable coming together may be anticipated. S. R. Miles and A. R. Sale of Mason City, respectively president and secretary of the Iowa Retail Hardware Dealers' Association, are taking a prominent part in the affair.

David L. Billings, a prominent citizen of Dorchester, Mass., for many years identified with the Hardware trade and head of the D. L. Billings Company, died at his home, June 30. He was born in Orland, Maine, in 1842, and went to Boston when 12 years of age. He was a Mason and an Odd Fellow, and was an influential Baptist.

The Mount Pleasant Tool Company, Mt. Pleasant, Westmoreland County, Pa., is running its plant at full capacity, and a full line of Open, Plain and Riveted Back Shovels is being turned out. It is now prepared also to place on the market a full line of Snow Shovels.

AMONG THE HARDWARE TRADE.

Winfield & Miller, Winfield, Kan., have dissolved partnership, and the Hardware, Stove and Plumbing business will be continued by W. S. Miller, under the style of Miller Hardware Company.

Peter Steenhusen has purchased the General Hardware business formerly conducted by Charles McConnell at Irwin, Iowa.

Craig & Morris are a new firm at Schuyler, Neb., having purchased the Hardware and Implement business of T. E. Molacek, which was established 23 years ago. Mr. Clark was formerly a newspaper editor.

I. W. Harrison has bought the General Hardware business formerly carried on by J. C. Hartsough in Oak, Neb.

The Norwalk Hardware Company, Norwalk, Ohio, have incorporated with a capital of $15,000.

G. W. Loomis & Co. have bought the Hardware, Stove, Agricultural Implement, Paint and Sporting Goods business of Jones & Niver in Bowling Green, Ohio.

Driskell & Stanley, Haddam, Kan., have succeeded Sellers & Sons in the Hardware and furniture business.

The Morse Hardware Company, with a capital stock of $100,000, paid in $39,000, have succeeded L. L. Morse & Sons, Jennings, La.

The Drake Hardware Company, Carthage, Mo., have succeeded Drake-Bahney Hardware Company.

B. L. Neff has disposed of his Hardware and Agricultural Implement business at Bridgeport, Neb., to Elter & Co., who continue at the old stand.

S. E. Alexander & Son are a new firm at Dale, O. T., handling Shelf Hardware, Stoves, Tinware, Paints and Agricultural Implements.

Thompson-Brown Hardware Company, Belview, Minn., have succeeded the New Hardware Company, with E. H. Brown as manager.

G. W. Williams is successor to William Winkler in the Hardware, Stove, Implement, Paint and Sporting Goods business in Seneca, Kan.

J. E. Ludden has succeeded the Baker Hardware Company at Weymouth, Mass.

B. M. Eastburn & Son, Hillsboro, Iowa, have purchased the Hardware, Stove, Agricultural Implement, Paint and Sporting Goods business heretofore carried on by H. H. Masden.

Gassett & Son have lately commenced the retail business at Davenport, O. T., handling Shelf Hardware, Paints, Sporting Goods, &c.

Weir & McClave have purchased J. D. Porter's Hardware business at Steubenville, Ohio, and will continue at the old stand.

E. T. George & Co., retail Hardware dealers, at 31 Weybosset street, Providence, R. I., will sell out their stock and go out of business. Mr. George has been established at this location for 25 years.

D. J. Burton has succeeded Strain & Burton in the Hardware, Stove, Farm Implement, Paint and Sporting Goods business at Norway, Kan.

L. L. Hockett is successor to Denny & Hockett, dealers in Shelf and Heavy Hardware, Stoves, Pumps, and Wind Mills, at Manilla, Iowa.

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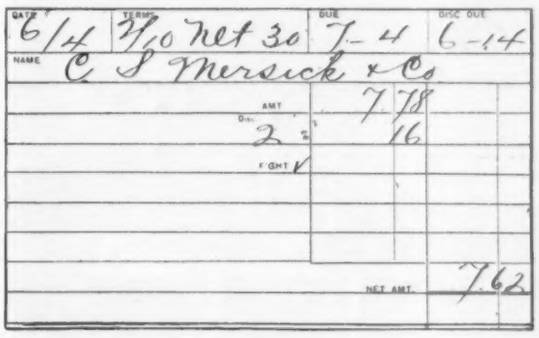
FACTORY COST AND BUSINESS METHODS.

A TREASURER'S INDEX FOR CURRENT PAYMENTS.

The index here described as a ready reference for treasurers or cashiers having in charge the payment of merchandise, bills, &c., is one devised by Charles Treadway, treasurer of the New Departure Mfg. Company, Bristol, Conn., and 113 Chambers street, New York. This company, which has originated many admirable methods in the systemization of its business, both in the manufacturing and office departments, makes the New Departure Coaster Brake, Bells for bicycles, door and fire alarm purposes, Cyclometers, Plumbers' Brass Goods and a few classes of specialties for other manufacturers.

Purchases of Supplies

In a manufacturing plant where the groups of manufactured articles are considerably diversified and comprise all kinds of operations from foundry to finishing room, there is a consequent demand on the purchasing department for purchases from ever multiplying sources. For instance, in the plant where the system which this article describes is used there are 23 distinct departments, carefully classified as regards the nature of the work done in each department, and there is required for all of these a varied line of supplies for use in manufacturing articles from many forms of raw



Reproduction of Index Card (Size of Card 5 by 3 Inches).

material. These all lead the purchasing department to buy from many different supply houses, and hence, not being able to have one or even a dozen single supply points to deal with, each day's mail brings a great number of invoices from as many different sources.

It is customary for manufacturers where circumstances warrant so to arrange their finances as to be able to take advantage of all cash discounts, which prompt payment will allow. To be punctual to the day it is necessary for the treasurer or other officer having charge of this important detail to have some systematic method of expeditiously and accurately making the payments as the accounts mature, and at the same time be able when collections are slow, season dull and demand from the buyer great (due to a stocking up for the busier seasons) to closely estimate the cash requirements ahead, possibly but a day or two; perhaps for a week or more.

Card Index of Payments

After devising several schemes Mr. Treadway hit upon the one described below, which has been found to be most useful. Each day as invoices are properly recorded the clerk in charge fills out a card as illustrated in Fig. 1; one card for each invoice. These cards are then filed in a small card tray, which contains three sets of 31 guides each (blue, salmon and canary colored) numbered from 1 to 31. These, it will be seen, represent a space of three full months by days, and by referring to the cards back of any guide it can easily be determined what invoices are due for payment on any particular day. For instance, referring again to Fig. 1 it will be seen that the bill of "C. S. Mersick & Co., dated June 4, $7.78 gross, less 2 per cent. discount for cash, nets $7.62. It will also be noted that the invoice referred to by this card dated June 4 is due under the terms of 2 per cent. 10 days, net 30 days, for discount on the 14th, or if the discount be not taken it is due July 4, in which case it is on the discount date transferred to the "net due" date of July 4, represented by the guide card marked 4 among the set of guides next in order and of a different color. A closer inspection of the card may be of interest: in the case used as an example, the gross amount of the invoice as rendered was $7.78. By the terms of the purchase the buyer is allowed 2 per cent. on the gross amount if paid in 10 days besides the freight allowance, provided the freight was not prepaid. In this case the purchase being small, undoubtedly an express shipment, no delivery was allowed, and the freight has not entered into the case, although on looking carefully at the card it will be seen that cognizance has been taken of the item of freight. The filling out of these cards requires but little time. They serve as a check on the daily work and accuracy of the clerk who has the invoices in charge, and who must accordingly be prompt and accurate to make the system efficient. The card tray is then, completed to date, a sort of perpetual reminder of inestimable value, especially if the individual having the approval of bills for payment in charge be very busy, and hence unable to look over each invoice before payment. The invoices must have been already carefully checked and authorized for payment by the purchasing agent before a card can be made out by the invoice clerk, and the approval for payment is then not absolutely necessary so far as the correctness of the invoice is concerned, and the items may be looked over and digested at the discretion and convenience of the officer in charge, making it more a matter of opportunity than of every day routine and detail. For economical reasons, the cards, which are 5 x 3 inches, are printed exactly alike on both sides, so that by reversing one card serves twice.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS *for catalogues, price-lists, quotations, &c., have been received from the following houses:*

FROM THE GROVE HARDWARE COMPANY, Grove, I. T., wholesale and retail Hardware, Stoves, Agricultural Implements, Paints and Oils, Sporting Goods, &c. The company has recently been incorporated.

FROM LEWIS & KIRKHAM, Lebo, Kan., who have succeeded Haigler & Lewis in the Hardware, Stove, Paint and Implement business.

FROM C. G. ALSENE, Moline, Ill., who has succeeded A. E. Froyd & Co. in the general Hardware business.

FROM THOMASON BROS. & HANSON, Sand Point, Idaho, who have succeeded E. D. Farmin in Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, Paints, Sporting Goods, Miners' Supplies, &c.

FROM PALOUSE HARDWARE & IMPLEMENT COMPANY, Palouse, Wash., which has just been incorporated with a capital stock of $30,000. The company has acquired the Hardware business formerly carried on by W. F. Chaloner, and will also handle furniture.

THE LIVINGSTON NAIL COMPANY, 104 Reade street, New York, who, along with other specialties, largely dealt in, represent as sole selling agents the Hudson Parer Company, Leomister, Mass., whose entire product of Apple Parers they have marketed for over 20 years. are already in receipt of substantial orders for this line of goods, in anticipation of a good apple crop. The company make the Rocking Table, Little Star and Daisy, the first named being an Apple Parer only, the Little Star and Daisy paring, coring and slicing in one operation. These goods are marketed both in this country and abroad, the latter largely through commission houses here.

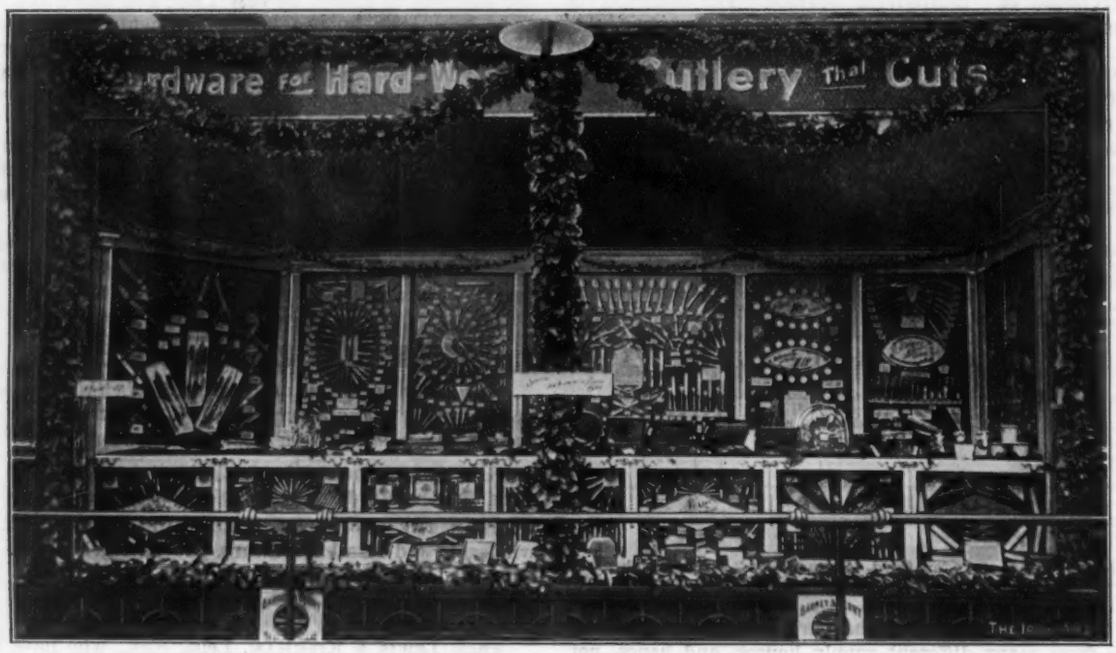
TRADE WINNING METHODS.

This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

AN ATTRACTIVE SHOW WINDOW.

IN the accompanying illustration we present a view of a show window of Pickering Hardware Company, Cincinnati, Ohio, as designed and arranged for the Christmas holidays by the company's window dresser, Albert J. Hovekamp. Mr. Hovekamp refers to some of the principles which should govern in show window display as follows:

Nowadays the successful business man does not, like his predecessors, conceal his good qualities beneath a suit of unkempt clothes, but pays considerable attention to his personal appearance. He is not extravagant, but generally dresses neatly. He knows that, although clothes do not make the man, a diamond in the rough is not as



An Attractive Show Window.

acceptable as a finished one. Hardware show windows must be considered in the same manner. They are a part of the business that must be clothed or their value to the merchant as advertising mediums and sellers of goods is lost. Their dress, like the man's, should not be extravagant—that is, silk, satin, velvet and other expensive material is out of place in a Hardware display. Such material used in a display is a waste of money. The Hardware merchant is not attempting to sell dry goods.

Artistic work in a window should not consist of a lot of wood work covered with cloth. Hardware windows are to sell Hardware, and this is accomplished by a lavish display of articles taken from stock. Window trimmers will find plenty of opportunity to test their skill and resources by endeavoring to artistically place goods in windows instead of a less effective display of fancy work. Some artistic work is required to tone up a window, but the central idea is to show goods; therefore space in a window is an important item. The window shown presents the writer's style of displaying goods, which he has found to be the most effective.

The size of the window in which the accompanying display was made was 17 feet long; hight, 9 feet; depth, 4 feet. The hight of frame work in window was 6 feet; hight from floor to platform, 2 feet. The white frame work was made of 2½-inch wood strip, which was painted with white calcimo and ornamented with plastic relief ornaments in the form of knotted bow ribbons and pearls, which were gilded with gold enamel. Strips in rear of window were finished with a small cupola, on which rested molding, which was also made of 2 and 2½ inch strips. Goods were mounted on boards covered with turkey red print. This is referred to as a very good color upon which to mount Hardware, as it catches the eye and holds it. These boards at bottom, beginning from left side, contained: First card, 25-cent Knives; next, 50-cent; next, $1 line. The center card contained higher priced Knives; next, Safety Razors; next, Scissor Sets; next, a display of Pickering Razors. This part of window was illuminated by 14 electric lights, which were placed under platform and back of frame work, and were not visible to the eye. These also illuminated floor and made this part very attractive. Space from glass to frame was 14 inches, in which were placed Child's Sets, Nut Picks and Cracks, Manicure, Ladies' Work and Razor Sets. On platform were placed Safety Razor Sets, Carvers, Brushes and other articles that would not obstruct view of display in rear.

Beginning from left side, upper part of window, goods were displayed as follows: On first card, Carvers; next card, Scissors of all kinds except Manicure Scissors, which were shown with line of Manicure Instruments. On next card a display of Silverware; next, Watches and Chains. On next card a line of Razors, Lather Brushes and Razor Strops were shown, and against wall on right side were shown Table Cutlery and Cork Screws. Every article in window was priced. That the display was effective was indicated by the number of persons who entered the store and asked for goods shown in the window, as well as by the constant stream of people who stopped to look at the display.

A HARDWARE MERCHANT'S CATALOGUE METHODS.

AT a time when catalogue house methods are absorbing the attention of the Hardware trade it is particularly interesting to learn that a retail merchant has effectively turned the seemingly adverse conditions to his own advantage. Based on the catalogue house plan as derived from the discussion appearing in *The Iron Age*, H. W. Morse of Meriden, Conn., has issued a 5000 edition of a 24-page catalogue, 9 x 12 inches in size, at a cost of $250, and has distributed it freely among the 28,000 inhabitants of Meriden. Formerly he used this amount of money in daily newspaper advertising, but finds he is getting far better results from the catalogue,

so much so that he intends to extend the circulation to the surrounding country.

Some Causes of Success.

In an introduction to customers it is stated that the catalogue is designed to show them what one dollar will do, and that the prices of the staple articles with which it is filled defy competition. Attention is called to the fact that the policy of selling good goods at the lowest possible prices has developed a small business established in 1899 into one of the largest retail stores in this line in New England. It is pointed out that selling for cash only and carrying an endless variety of goods is an advantage to customers, not only in price, but in the matter of selection at home, as compared with buying goods in New York or Chicago, paying freight and not knowing what will be received for the money forwarded.

The Contents.

The catalogue, of course, shows but a small percentage of the lines carried. The first three pages are devoted to Garden and Flower Seeds in bulk, with no illustrations, but with prices. Most all other goods included are illustrated, in every instances with prices, and comprise Screen Doors and Windows, Screen Wire, Poultry Netting, House Furnishings, Lawn Goods, Iron, Tin and Enameled Ware, Carpenters' and Machinists' Tools, House Electrical Supplies, Heels, Soles, Repair Outfits, &c. Such lines as Cutlery, Fishing Tackle, Fourth of July Goods, &c., are catalogued with prices, but without illustrations.

Prices.

The following are a few of the prices quoted, which will serve to give an idea of the basis upon which patronage is asked:

Steel Curry Combs, eight-bar, solid back, black enameled handle, 10 cents.
Spring Padlocks, one key, 10 cents; two keys, 25 cents.
Wire Coat and Hat Hooks, 10 cents per dozen; 90 cents per gross.
Handled Axes, A1 Boys', 75 cents; 3 to 6 pound, $1.
Saw Files 4 to 6 inch, 5 cents; per dozen, 50 cents.
Steel Trowels, Masons', 40 cents; Pointing, 10 to 25 cents; Garden, 10 cents.
Steel Side Cutting Pliers, 4-inch, 35 cents; 5-inch, 50 cents; 5½ and 6 inch, 75 cents; 8-inch, $1.
Cast Steel Hatchets, 25, 50 and 75 cents.
Poultry Netting, 2-inch mesh, ¾ cent per square foot in small quantities; ½ cent per square foot in 150-foot rolls. Other sized mesh in proportion.
Screen Wire Cloth, 2 cents per square foot, 100 running feet to the roll.
Wheelbarrows, common, bolted, with iron wheel, $2; Garden or Farm, painted inside and outside, $3.
Four-tube Revolving Spring Punch, 50 cents.
Pruning Shears, 25, 35 and 50 cents.
Four-pieced Elbows, 5½ and 6 inch, 10 cents.
Blank Cartridges, .22 short, 10 cents, 3 boxes 25 cents; .32 rim fire, 20 cents, 3 for 50 cents; .32 central fire, 35 cents, 3 for $1.
Brass Bound Linen Tape Measures, 25 feet, 35 cents; 40 feet, 35 cents; 75 feet, 50 cents.
Wrought Hasps with Staples, 5 to 8 inches long, 5 cents.
Double Lip Regular Auger Bits, 4-16 and 5-16, 10 cents; 6-16 to 9-16, 15 cents; 10-16 to 13-16, 20 cents; 15-16 and 16-16, 25 cents.

Terms and Requirements.

The following, in brief, are the terms and requirements which appear at the end of the book:

Terms are cash to every one, as no book accounts are kept.

Drivers collect at residence when they deliver goods, deliveries being made to any part of the city free of charge.

On mail orders freight will be prepaid on $10 worth of goods; purchases amounting to less than $10 will be delivered free of charge to freight station, in both instances goods being properly packed and marked without charge.

Cash or money order must accompany mail orders.

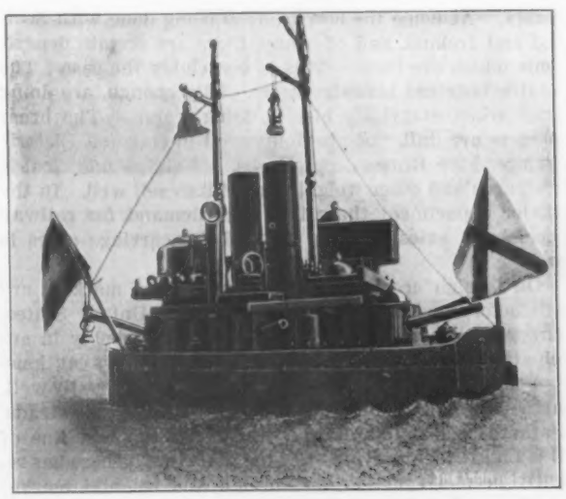
If postage stamps are sent in payment for small articles ordered, the goods will be mailed postage free.

Goods sent on mail orders may be returned within three days of their receipt, if purchaser is not satisfied with them, provided the goods are in as good condition as when received, and the amount paid will be refunded. This offer of return is made to show the proprietor's reliability and the confidence he has in his goods.

Mr. Morse's establishment is known as "The Big Store with the Little Prices."

HARDWARE BATTLE SHIP.

THE battle ship illustrated herewith was the feature of an attractive window exhibit recently made by Carl Bros. & Co., Shreve, Ohio. In preparing this vessel two Cross Cut Saws were first procured, and also two light boards, such as are used as backing for pictures. These boards are usually about 1 foot wide and 7 or 8 feet long. A frame was put between the Saws and they were bent into the desired shape. Then the boards were marked and cut to give the idea of a ship. To secure good effect holes were bored in the boards just above the Saw with a 1-inch bit, a ½-inch bit being used for smaller holes. Then red tissue paper was placed over the holes, which in connection with electric lights in the hold presented a very realistic appearance. The two large turrets were



Hardware Battle Ship.

made from ¼-bushel Measures, the two smaller being ⅛-bushel Measures of the same style. It was not necessary to make holes in the Measures for the guns, a little lampblack mixed with oil being applied to give the appearance of holes. The guns were hung against the turrets, with wire wrapped tightly around them. The larger guns were made of 1¼-inch Black Pipe about 8 inches long. The smaller guns were made from the boxings of 1-inch Spindle Stubs. The masts consisted of two Hall Trees with the rungs pulled out. Fork Handles would answer as well if properly guyed. T-Bolts served as anchors. Plenty of Jack Chain was used around the ship to give it a nautical appearance. The waste that was sawed off the boards was utilized for the deck. Four ordinary Slaw Boards were used for the side bridges, and two large Slaw Boards for the front and rear bridges. On the front bridge a box of Baum's stock food was placed, which provided the pilot house. Two joints and two half joints of Stove Pipe were used for smoke stacks. Small Lanterns, Rope and Nickel Ware were put in places where they would help out most effectively. Soapstones were placed on the top of each turret. Brass Cylinders with Tin Cups supplied the ventilator devices. For the sea oyster shell was an effective substitute. Two Electric Searchlights were used to illuminate the display, which was prepared by Earl G. Carl.

PITTSBURGH SHOVEL COMPANY.

THE PITTSBURGH SHOVEL COMPANY, Pittsburgh, Pa., is drawing plans for quite an addition to the works at Leechburg, Pa. These contemplate the erection of a new building 50 x 140 feet and the installation of a complete train of rolls, together with boilers, engine and other machinery necessary for the manufacture of One-Piece Solid Steel Shovels. At the present time the company is producing a complete line of Back Strap, Hollow Back and Antrim Weld Shovels, Spades and Scoops. These lines will be continued in addition to the special One-Piece Shovel. This new installation will more than double the present capacity of the plant.

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, NORFOLK ST., LONDON, W. C., June 25, 1904.

The Week's Hardware Trade.

THE summer holidays are now upon us, and they cast their shadows before them. Generally the second quarter of the year is a fruitful one, but the opportunity this year has gone by, and leaves nothing but disappointment. The home trade is dull and unresponsive, especially in London. As is so often the case, this dullness is to some extent off set by a much more hopeful export trade. Statistically this looks sound enough, but, as a matter of fact, there are large numbers of manufacturers and merchants who confine their energies to the home trade, and who therefore feel the present situation acutely. At home the best trade is being done with Scotland and Ireland, and of course there are certain departments which are busy. This is invariably the case. The metallic bedstead manufacturers, oddly enough, are doing better when everybody else is doing worse. The brass founders are dull, but are doing well in Gas and Electric Fittings, Fire Brasses and Kerbs. Weights and Scales, Steelyards and other weighing machines sell well. In the heavier department there is a good demand for railway wheels and axles, but the demand for carriage axles is slack.

On foreign account most of our leading markets are satisfactory, with the exception of the United States. European orders are well above average, probably in anticipation of tourist invasion, but Germany buys cautiously. France, Italy and Spain are buying exceptionally well, particularly in Tubes, Guns, Gas Fittings, Bedsteads, Leather Goods and Sanitary Fittings, but the best line of all is Light Machinery and Sewing Machines. There has recently been a spurt in the foreign and colonial market for Cycles, but it has nearly exhausted itself, and there is now on the market a larger number of cheap German and American wheels, the effect of which is being felt. With India and Burmah we are doing exceptionally well, particularly in railway material, Galvanized Sheets, Edge Tools, Axles, Guns, Mining Appliances, Yellow Metal, Sheet Brass and Wire. Orders for Cuba are on the increase. The Levant trade, taken as a whole, is dull, but we are doing well with Egypt and Malta. The revival of business in Australia is maintained, and New Zealand is as ever a valuable standby for those who have secured this trade.

Nut and Bolt Makers' Strike.

This week a large number of operatives employed in the Nut and Bolt trade in the Hales Owen and surrounding districts turned out on strike in order to resist an attempt on the part of their employer to enforce a reduction of about 15 per cent. in wages. The strikers will be supported while at play by the workpeople of other large firms in the locality, as it is feared a general reduction will take place unless the attempt is successfully resisted.

British Workshop Methods.

I have received from the publisher of the *Ironmonger* a book entitled "The Ironmonger's Workshop," in which will be found described the methods and materials used in British ironmongery workshops. I am repeatedly asked by Americans who seek to obtain a foothold in this market what class of goods is in use in retail workshops. It is not easy to supply detailed information on this point. The book which has now reached me is not only valuable for its technical descriptions of workshop equipment, workshop material and workshop methods, but it throws many valuable side lights upon the general Hardware trade of Great Britain.

Trade Difficulties with South Africa.

The question of shipping freights to South Africa has been again on the *tapis*, and is being discussed by various Chambers of Commerce, notably Bristol and Birmingham, both of which places have valuable trade connections with South Africa. At Birmingham the following return was submitted, showing the difference in the rates charged to Cape Town and Algoa Bay:

Rates Charged to Algoa Bay and Cape Town.

	Rates charged to British shippers. Per ton.	Rates charged to American shippers. Per ton.
	s. d.	s.
Iron Bedsteads, Bolts and Nuts, Iron Chains, general Hardware, Tinware and Tools...	31 3	15
Brass Goods	42 6	15
Spades, Shovels, &c	25 0	15
Galvanized Iron	20 0	15
Bar Iron	22 6	15

Below are given the rates of freight to Natal and East London:

	Rates charged to British shippers. Natal. Per ton.	Rates charged to British shippers. East London. Per ton.	Rates charged to American shippers. Both ports. Per ton.
	s. d.	s. d.	s. d.
Iron Bedsteads, Bolts and Nuts, Iron Chains, general Hardware, Tinware and Tools	40 0	38 9	17 6
Brass Goods	52 6	48 9	17 6
Spades, Shovels, &c	32 6	32 6	17 6
Galvanized Iron	25 0	25 0	17 6
Bar Iron	30 0	30 0	17 6

In addition to the figures here quoted, the Germans have a distinct advantage over their British competitors even in British bottoms.

Sewing Machines in Constantinople.

More than two-thirds of the 10,000 Sewing Machines sold in Constantinople in 1903 were of American make, one-fourth were German, and the rest divided between England, Austria-Hungary and France. Eighty per cent. of all the machines in use are hand machines, though the German can be converted to a pedal machine.

TRADE OUTLOOK IN THE SOUTHWEST.

FROM A SPECIAL CORRESPONDENT.

CROP CONDITIONS, including cotton, promise well, but owing to the wet season volume may be restricted and values problematical. The half-year just closing has been satisfactory in staples and quite good in specialty lines, country dealers noting an increased demand in the varied household lines, but up to autumn business will be stagnated unless there should be unusual movements through forcing business, which is improbable owing to the integrity of the Hardware policies now ruling the market. The live feature of the trade is Sporting Goods, and while fishing and hunting have been restricted by law to residents, the true sportsman knows no limitation save natural barriers.

Texas is not prosperous as a whole, continued poor crops having played havoc with sections the size of small States. Oil production no longer startles business. It is a boon, but no redeeming quantity. There is an undercurrent of malcontent which crops out at every industrial or commercial center, and labor unionism has not proved the remedial agent. Things look vastly better in the territory where enterprise is manifold and aggressive, and whither the manufacturer is bending his energies to find an outlet.

Kansas news is encouraging, scenes of activity being everywhere manifest. St. Louis and the fair are drawing largely upon this State for visitors' list and will doubtless rake in a bank of her wheat dollars.

Mexico is not attracting the American investor, despite the Panama underpull. Capital is simply resting and nobody cares a sully for the boll weevil of indifference.

The Beardslee Hardware Company has incorporated at Alton, Ill., to deal in Hardware and Agricultural Implements. H. H. Beardslee is president and Chas. L. Beall vice-president. The company is erecting a new building, which it expects to have completed by August.

LADD'S DISCOUNT BOOK NO. 2.

WE take pleasure in calling attention to Ladd's Discount Book No. 2, which, after two years of preparation, is now ready for the trade. In the year 1887, when the first copy of this work was produced, we said of it among other words of commendation: "We welcome Ladd's discount book, believing it to be as claimed, 'accurate, rapid, convenient and practical,' and we bespeak for it, what the author most desires, a place upon all Hardware buyers' desks as a book for everyday use." It appears that the author's desires have been granted, for we learn that more than 7000 copies of the original book have been put into use, and from observation we know that it is found upon buyers' desks in all parts of the world. As valuable as the first book has been, it is expected that the No. 2 will supersede it, including as it does all the work that was in the original book and much that is new, covering discounts and combinations which have come into use within the past few years, even up to 90 and ten 10's, 90 and 45, &c. Of the discount tables, which occupy the body of the book, we give a specimen herewith, Fig. 2. There are six tables on each page, this specimen showing but three tables. The hand shows that at the discount named the net of 73 cents is 21 cents, of $7.30 it is $2.13, of $73 it is $21.33, of $730 it is $213.31 and of $7300 it is $2133.11.

Besides finding the net amount the printed explanations show the usefulness of the book in making list prices, splitting up discounts, finding discounts when both list price and the net are known, salesman's cost, and for other purposes.

The book is tastefully and substantially bound and is double indexed all through. The index is made on fine quality vellum, and, apparently, expense has not been spared to make it both durable and attractive.

In addition to the discount tables there are exceptionally valuable computations, none of which was in the old book, under the captions of the "Numerical Arrangement of Figured Nets," "Net of One Dollar," "Per Cent. Profit Tables," "Twelfth Tables," "Tables of Sterling, Marks, Francs and Kronen," with very lucid explanations

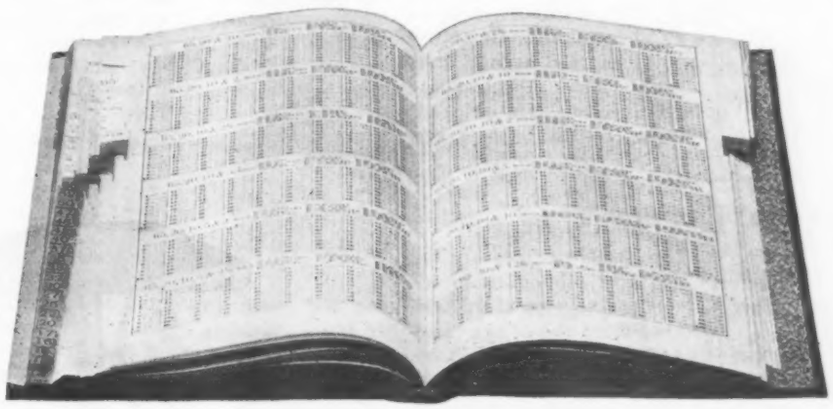


Fig. 1.—Ladd's Discount Book No. 2.

60, 10, 10, 7½ & 2½. Same as { 55, 20, 10, 7½ & 2½. / 50, 20, 10, 10, 7½ & 2½. / 40, 40, 10, 7½ & 2½. / 40, 35, 10, 10 & 7½. / 40, 33⅓, 10, 10, 7½ & 2½. / 40, 25, 20, 10, 7½ & 2½. / 37½, 20, 20, 10, 10, 7½ & 2½. / 35, 25, 20, 10, 10 & 7½. }

1	00.29 22	11	03.21 43	21	06.13 64	31	09.05 84	41	11.98 05	51	14.90 26	61	17.82 47	71	20.74 67	81	23.66 88	91	26.59 09
2	00.58 44	12	03.50 65	22	06.42 86	32	09.35 06	42	12.27 27	52	15.19 48	62	18.11 69	72	21.03 89	82	23.96 10	92	26.88 31
3	00.87 66	13	03.79 87	23	06.72 08	33	09.64 28	43	12.56 49	53	15.48 70	63	18.40 91	73	21.33 11	83	24.25 32	93	27.17 53
4	01.16 88	14	04.09 09	24	07.01 30	34	09.93 51	44	12.85 71	54	15.77 92	64	18.70 13	74	21.[illegible]	84	24.54 54	94	27.46 75
5	01.46 10	15	04.38 31	25	07.30 52	35	10.22 73	45	13.14 93	55	16.07 14	65	18.99 35	75	21.9[illegible]	[illegible]	24.83 76	95	27.75 97
6	01.75 32	16	04.67 53	26	07.59 74	36	10.51 95	46	13.44 15	56	16.36 36	66	19.28 57	76	22.2[illegible]	[illegible]	[illegible]12 98	96	28.05 19
7	02.04 55	17	04.96 75	27	07.88 96	37	10.81 17	47	13.73 38	57	16.65 58	67	19.57 79	77	22.5[illegible]	[illegible]	[illegible]3 21	97	28.34 41
8	02.33 77	18	05.25 97	28	08.18 18	38	11.10 39	48	14.02 60	58	16.94 80	68	19.87 01	78	2[illegible]	[illegible]	[illegible]	98	28.63 63
9	02.62 99	19	05.55 19	29	08.47 40	39	11.39 61	49	14.31 82	59	17.24 02	69	20.16 23	79	23.08[illegible]	[illegible]	[illegible]	[illegible]	28.92 85
10	02.92 21	20	05.84 41	30	08.76 62	40	11.68 83	50	14.61 04	60	17.53 24	70	20.45 45	80	23.37 66	[illegible]	[illegible]	[illegible]	29.22 07

60, 10, 10, 7½ & 5. Same as { 55, 20, 10, 7½ & 5. / 52½, 20, 10, 10 & 7½. / 50, 20, 10, 10, 7½ & 5. / 40, 40, 10, 7½ & 5. / 40, 33⅓, 10, 10, 7½ & 5. / 40, 25, 20, 10, 7½ & 5. / 37½, 20, 20, 10, 10, 7½ & 5. / 33⅓, 33⅓, 10, 10, 7½ & 5. / 33⅓, 25, 20, 10, 10, 7½ & 5. }

1	00.28 47	11	03.13 19	21	05.97 90	31	08.82 62	41	11.67 33	51	14.52 05	61	17.36 76	71	20.21 48	81	23.06 19	[illegible]	25.90 91
2	00.56 94	12	03.41 66	22	06.26 37	32	09.11 09	42	11.95 80	52	14.80 52	62	17.65 23	72	20.49 95	82	23.34 66	92	26.19 38
3	00.85 41	13	03.70 13	23	06.54 84	33	09.39 56	43	12.24 27	53	15.08 99	63	17.93 70	73	20.78 42	83	23.63 13	93	26.47 85
4	01.13 89	14	03.98 60	24	06.83 32	34	09.68 03	44	12.52 75	54	15.37 46	64	18.22 18	74	21.06 89	84	23.91 61	94	26.76 32
5	01.42 36	15	04.27 07	25	07.11 79	35	09.96 50	45	12.81 22	55	15.65 93	65	18.50 65	75	21.35 36	85	24.20 08	95	27.04 79
6	01.70 83	16	04.55 54	26	07.40 26	36	10.24 97	46	13.09 69	56	15.94 40	66	18.79 12	76	21.63 83	86	24.48 55	96	27.33 26
7	01.99 30	17	04.84 02	27	07.68 73	37	10.53 45	47	13.38 16	57	16.22 88	67	19.07 59	77	21.92 31	87	24.77 02	97	27.61 74
8	02.27 77	18	05.12 49	28	07.97 20	38	10.81 92	48	13.66 63	58	16.51 35	68	19.36 06	78	22.20 78	88	25.05 49	98	27.90 21
9	02.56 24	19	05.40 96	29	08.25 67	39	11.10 39	49	13.95 10	59	16.79 82	69	19.64 53	79	22.49 25	89	25.33 96	99	28.18 68
10	02.84 71	20	05.69 43	30	08.54 14	40	11.38 86	50	14.23 57	60	17.08 29	70	19.93 00	80	22.77 72	90	25.62 43	100	28.47 15

60, 10, 10, 7½, 5, 2. Same as { 55, 20, 10, 7½, 5 & 2. / 52½, 20, 10, 10, 7½ & 2. / 50, 20, 10, 10, 7½, 5 & 2. / 40, 40, 10, 7½, 5 & 2. / 40, 33⅓, 10, 10, 7½, 5 & 2. / 40, 25, 20, 10, 7½, 5 & 2. / 37½, 20, 20, 10, 10, 7½, 5 & 2. / 33⅓, 33⅓, 10, 10, 10, 7½, 5, 2. / 33⅓, 25, 20, 10, 10, 7½, 5 & 2. }

1	00.27 90	11	03.06 92	21	05.85 94	31	08.64 96	41	11.43 98	51	14.23 01	61	17.02 03	71	19.81 05	81	22.60 07	91	25.39 09
2	00.55 80	12	03.34 82	22	06.13 85	32	08.92 87	42	11.71 89	52	14.50 91	62	17.29 93	72	20.08 95	82	22.87 97	92	25.66 99
3	00.83 71	13	03.62 73	23	06.41 75	33	09.20 77	43	11.99 79	53	14.78 81	63	17.57 83	73	20.36 85	83	23.15 87	93	25.94 89
4	01.11 61	14	03.90 63	24	06.69 65	34	09.48 67	44	12.27 69	54	15.06 71	64	17.85 73	74	20.64 75	84	23.43 77	94	26.22 79
5	01.39 51	15	04.18 53	25	06.97 55	35	09.76 57	45	12.55 59	55	15.34 61	65	18.13 63	75	20.92 66	85	23.71 68	95	26.50 70
6	01.67 41	16	04.46 43	26	07.25 45	36	10.04 47	46	12.83 50	56	15.62 52	66	18.41 54	76	21.20 56	86	23.99 58	96	26.78 60
7	01.95 31	17	04.74 34	27	07.53 36	37	10.32 38	47	13.11 40	57	15.90 42	67	18.69 44	77	21.48 46	87	24.27 48	97	27.06 50
8	02.23 22	18	05.02 24	28	07.81 26	38	10.60 28	48	13.39 30	58	16.18 32	68	18.97 34	78	21.76 36	88	24.55 38	98	27.34 40
9	02.51 12	19	05.30 14	29	08.09 16	39	10.88 18	49	13.67 20	59	16.46 22	69	19.25 24	79	22.04 26	89	24.83 28	99	27.62 30
10	02.79 02	20	05.58 04	30	08.37 06	40	11.16 08	50	13.95 10	60	16.74 12	70	19.53 14	80	22.32 17	90	25.11 19	100	27.90 21

Fig. 2.—Arrangement of Discount Tables (Half Page).

for their use, all of which must have cost the author very much hard work. In fact, as we examine this book, we are impressed with the vast amount of work which has been put upon it.

Mr. Ladd is connected with the Hardware house of Sargent & Co., and has been for a great many years; he is well and favorably known to the trade. He has had an extensive experience in the publication of Hardware literature, is thoroughly familiar with discounts, and is thus especially fitted for such an undertaking. He states that the No. 2 is the last discount book that he will ever issue, and therefore he has aimed to make it so comprehensive that a No. 3 will never be needed. The price of the book is $4, net cash, delivered to any part of the world.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our Catalogue Department in New York and another for our London Office; and at the same time to call our attention to any new goods or additions to their line, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

BAKER-McMILLEN COMPANY, Akron, Ohio: Illustrated catalogue of the Akron Eclipse Levels, having the Eclipse mark by which the position of the bulb is quickly and accurately determined; also glasses which are screwed in.

S. L. ALLEN & Co., Philadelphia, Pa.: Flexible Flyer Sleds in five sizes, two of which have foot rests.

THE UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn., M. Hartley Company, 313-315 Broadway, New York, selling agent: A handsome lithographed hanger, 24½ x 15½ inches, in colors, calling attention to its Smokeless Powder Shot Shells.

DIAMOND RUBBER COMPANY, Akron, Ohio: Mechanical Rubber Goods, including Anti-Rattlers, Baby Carriage Tires, Belting, Cement, Diaphragms, Gaskets, Hose, Mats and Matting, Packing, Springs, Valves, Washers, &c.

PUTNAM & Co., 244 Water street, New York: Trucks, Baggage Barrows, Depot Express Wagons, Push Carts, Skids, &c.

THE DUCHARMES & Co., Shelburne Falls, Mass.: Catalogue No. 1, devoted to High Grade Tools, including Screw Drivers, Ice Picks, Scratch Awls, Screw Driver Bits, Nail Sets, Round Punches, &c.

THE SHEET METAL MFG. COMPANY, Niles, Ohio: Bas-Relief Chemigraph, "A Step in the Dance." The company manufactures Corrugated Roofing and Siding.

J. S. JACKSON & SON, Bath, Maine: Catalogue and price-list showing a comprehensive line of Tackle Blocks. A jobbing department is also carried on, doing forging, machine work and mill work, including turning, band and circular sawing, planing and molding. The company occupies a new plant, which is referred to as especially modern and complete. The business was established in 1800 and incorporated in 1902.

EAGLE LOCK COMPANY, Terryville, Conn.: Extra pages for insertion in their catalogue, volume 18.

THE REMINGTON ARMS COMPANY, Ilion, N. Y., for whom M. Hartley Company, 313-315 Broadway, New York, is selling agent: An attractive lithographed hanger in colors, 17 x 22 inches, calling attention to the Shotguns made by them. It is very striking in appearance, showing Guns, Ammunition and game on the wing.

THE MACOMBER & WHYTE ROPE COMPANY, Chicago: A postal card advertising the Monarch Rope. The back of the card contains an artistic heraldic design, representing a dray filled with Monarch Rope drawn by a fine team of horses and preceded and followed by a modification of the conventional lion rampant.

BENJ. S. ALDER, 37 Warren street, New York, manufacturers' representative in Hardware and Tools: descriptive booklet of 32 pages of the 16 concerns whose goods he handles for jobbing and export. The book is intended for ready reference, for both buyer and stock clerk, there being alternate blank pages for memoranda.

The Omega Toggle.

A toggle for use in hollow brick, tile, &c., is shown herewith. Ordinary wood screws, either Nos. 10 or 12, round or flat head, brass, nickel or bronze, of any length can be used. No nuts are required, and there is no cutting to be done. The toggle head is fitted with adjustable springs to fit different threads, two springs being riveted on each end of the head, which meet in the center

The Omega Toggle.

over the hole the screw passes through. The ends of the springs are punched out in a semicircle, the four springs engaging the thread and body of the screw, clamping it tightly with an outward stress; the screw may be pushed in or screwed in or out with the fingers, but cannot be pulled out. The string is used to hold the head in the wall while the screw is being adjusted. The toggle heads are manufactured by the New Jersey Foundry & Machine Company, 9 Murray street, New York.

Pike's Rotary Razor Strops.

The Pike Mfg. Company, Pike, N. H., and 151 Chambers street, New York, is just placing before the trade Pike's rotary razor strop for sharpening and stropping

Pike's Rotary Razor Strop.

any kind of razor, an illustration of which is here given. In use a partial revolution of the crank is made until an open space is left between the two rolls. After raising the lever the razor is inserted in a receptacle provided for that purpose, when, after replacing the lever on back of the razor and holding firmly, the crank is revolved and the razor blade stropped scientifically by even the inexpert. Care should be taken to keep the leather

clean and free from any foreign substance. In operation the stroke is from heel to point of razor, always at same angle and parallel to edge, the pressure and stroke being the same on each side of the razor, therefore, it is said, being impossible to turn the edge, sharpen one side more than the other or draw the temper. The strop cannot be revolved backward, so that it is impossible to cut the leather. To sharpen a very dull razor a little of the razor paste dressing furnished with each machine can be applied, thus providing both hone and strop. The strops are furnished in either polished oak, mahogany or cherry cases at a uniform price, the box being about 5 inches square. A more elaborate outfit to fasten against the wall is also made. With the strop a decorated shaving mug, brush, magnesia, stick of Williams' shaving soap in metal box and two leather receptacles for razors are furnished. At the back is a heavy beveled French plate mirror, mounted on a wooden slide, so that in use it can be raised almost its entire length and held in place to shave by. This outfit is secured to a back piece of the same wood 12 x 5¾ inches, the box portion being 11 x 4¾ x 4⅝ inches. When using, by unloosening a catch, the front, hinged at bottom, drops at right angles with back and is held securely by two nickeled sliding supports.

Insulated Screw Driver.

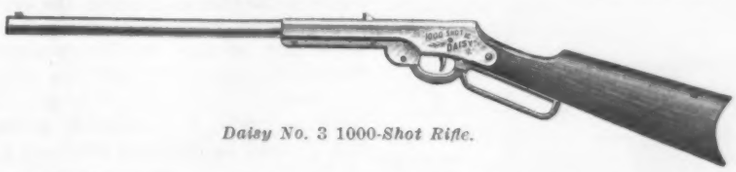
Braunsdorf-Mueller Company, Elizabeth, N. J., manufacturer of improved mechanics' tools, is putting on the market insulated screw drivers for electricians, as illustrated herewith. The handles are hard wood, ebony or rubber finish, and have fiber ferrules. The blades are hand forged of best crucible tool steel, hardened and tempered to stand severe usage. The entire blade, except a small portion at the extreme end, is covered with fiber.

Insulated Screw Driver.

They are made in two styles. The one shown in cut is made in one size only, 5½ inches over all. The other style has fluted handles, like their Never Twist screw drivers, and is made with 4, 6, 8, 10 and 12 inch blades.

Daisy No. 3 1000-Shot Rifle

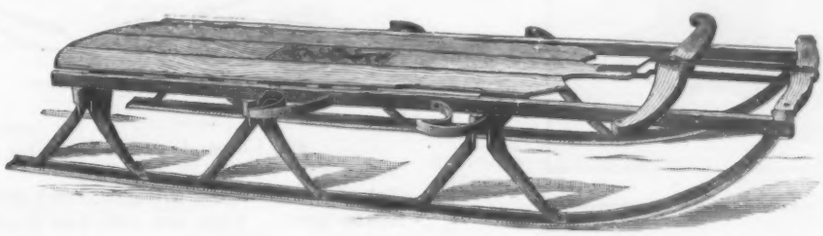
The Daisy Mfg. Company, Plymouth, Mich., is offering the rifle illustrated herewith. It is a magazine gun with lever action, the magazine holding 1000 BB shot, and loads automatically. The working parts are made of steel and brass, and are so arranged that the gun may be easily taken apart and put together. The stock is of black walnut, highly polished. The rifle, the manufacturers explain, bears a close resemblance to an air rifle and shoots with a force and precision that are said to be quite remarkable.



Daisy No. 3 1000-Shot Rifle.

Flexible Flyer Sleds.

The accompanying cut represents one size of Flexible flyer sleds, with foot rests, offered by S. L. Allen & Co., Philadelphia, Pa. The sleds have light runners of T-shaped spring steel, to make them strong vertically, but flexible sidewise. This enables one to guide the sled by putting the feet on a steering bar, by which the runners may be curved and the sled steered to the right or left, as desired. It is explained that steering thus made easy is the great charm of the coaster, and that as there is no drag or friction the sleds go swiftly. Among other points of excellence the following are mentioned: That the sleds are comfortable, that the rider's shoes remain dry, and his clothes are not filled with flying snow, and that the spring steel runners are exceptionally strong. The sleds are made in five sizes, two of which have foot rests, as shown in the cut.



Flexible Flyer Sleds.

Screw Driver Bit and Punch.

The screw driver bit and punch shown herewith are offered by the Ducharmes & Co., Shelburne Falls, Mass. These goods are made of the best steel obtainable, and the manufacturers state that they replace, free of charge, any tools that break, bend or are not perfect that have their trade-mark (Hand D) stamped on them.

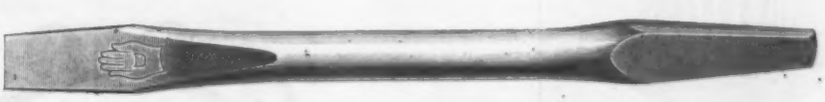
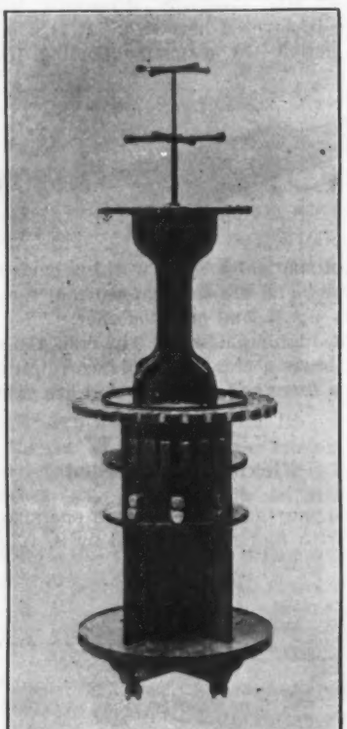


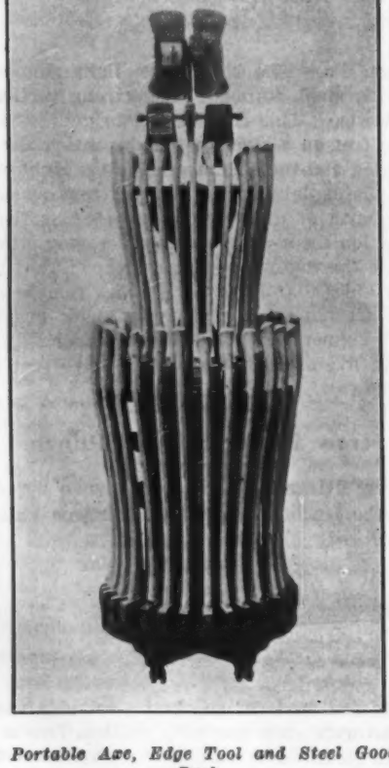
Fig. 1.—Screw Driver Bit.

Fig. 2.—Round Punch.

Babcock's Portable Axe, Edge Tool and Steel Goods Display Rack.

The rack shown in the accompanying cuts is offered by E. B. Babcock, Salt Lake City, Utah. Though not so shown, the bottom has elongated holes to permit taking out dust without overturning the rack. It is finished





Babcock's Portable Axe, Edge Tool and Steel Goods Display Rack.

with two coats of black asbestos paint on the main body, with the rims and facings trimmed in vermilion, after which a coat of extra coach varnish is applied. The rack shown in the upper illustration, unfilled, is made in four numbers, by additions being made to the base, above the lower part holding handled axes. Number 1 consists of the bottom section only, and displays 28 men's handled axes and 24 steel forks or rakes, brooms, mop sticks or goods of like nature. The other goods, besides the handled axes, are accommodated by boring holes in the center cylinder, dodging the recesses in which the handles are held. Rack No. 2 is the same as No. 1, with an upper section for boys' handled axe display, holding 28, and feather duster display, or whips, and various other goods. No. 3 is the same as Nos. 1 and 2, with the addition of upright and cross arms for holding 8 unhandled axes. No. 4 is the same as Nos. 1, 2 and 3, with two portable shelves underneath the center cylinder, set at a slight angle, holding 24 unhandled axes. The second shelf may be used to display adzes, wedges, &c., there being room enough to hold the assortment carried in retail stocks. The rack may be used for various other purposes suggested by seasonable goods, and being portable, can be used in different locations in the store.

Sterling Sleigh Bells.

The N. N. Hill Brass Company, East Hampton, Conn., is putting on the market a new line of pad, neck and body bells, as herewith shown. The bells are 2½ inches in

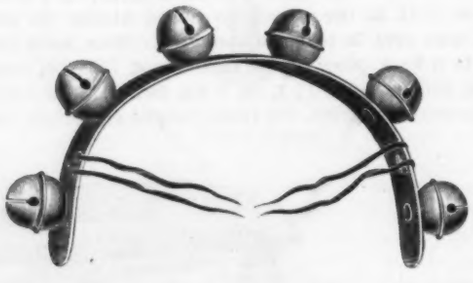


Fig. 1.—Single Throat or Dexter Pattern.

diameter, made from wrought metal, and are guaranteed not to break. They are attached to straps by screws, which can be removed with an ordinary screw driver for replating or cleaning, and are made in the following

Fig. 2.—Triple Throat or Russian Pattern.

finishes: Oroide, nickel, antique copper, silver, antique silver and gold. In Fig. 1 is shown the single throat or Dexter pattern; in Fig. 2 the triple throat or Russian pattern, and in Fig. 3 the Swedish pattern. Sterling bells

Fig. 3.—Swedish Pattern.

are referred to as of high quality and produced by skilled labor. The company manufactures a full line of sleigh bells, including over 1400 different sizes and styles.

Current Hardware Prices.

REVISED JULY 5, 1904

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1904, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Abrasives—

Adamite in Carloads:
Crystal ... ℔ ton $90@100
Grain ... ℔ ton $120@140
See also *Emery*.

Adjusters, Blind—

Domestic, ℔ doz. $3.00 ... 33⅓%
North's ... 10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent ... 35%
Taplin's Perfection ... 35%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Armand Hammer, Wrought ℔ lb 8¼@8¾¢
Eagle Anvils ... ℔ lb 7¾@7¾¢
Hay-Budden, Wrought ... 8@9¼¢
Horseshoe brand, Wrought ... 9@9¼¢
Trenton ... ℔ lb 9@9¼¢

Imported—

Peter Wright & Sons ... ℔ lb 10½¢

Anvil, Vise and Drill—

Millers Falls Co., $18.00 ... 15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Hull Bros. Co ... 30&5%
Livingston Nail Co ... 33⅓%

Augers and Bits—

Com. Double Spur ... 75@75&5%
Boring Machine Augers ... 66⅔@70%
Car Bits, 12-in. twist ... 60@60&10%
Jennings' Pattern ... 50&10&5@60%
Ford's Auger and Car Bits ... 40&5%
Forstner Pat. Auger Bits ... 25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list 25&10%
No. 30. R. Jennings' List. 40&7½&10%
Russell Jennings ... 25&10&2½%
L'Hommedieu Car Bits ... 15&10%
Mayhew's Countersink Bits ... 45%
Millers' Falls ... 50&10&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits ... 40&10%
Pugh's Black ... 20%
Pugh's Jennings' Pattern ... 35%
Snell's Auger Bits ... 60%
Snell's Bell Hangers' Bits ... 50&10%
Snell's Car Bits, 12-in. twist ... 60%
Wright's Jennings Bits (ft. Jennings' list) ... 50%

Bit Stock Drills—

See *Drills, Twist.*

Expansive Bits—

Clark's small, $15; large, $26 ... 50&10%
Clark's Pattern, No. 1, ℔ doz., $36; No. 2, $18 ... 50&10%
Ford's, Clark's Pattern ... 50&10@60%
C. E. Jennings & Co., Steer's Pat. 25&10%
Swan's ... 60%

Gimlet Bits—

Common Double Cut.. gro. $3.00@3.25
German Pattern ... gro. $4.50@4.75

Hollow Augers—

Bonney Pattern, per doz. $10.00@11.00
Ames ... 25&10%
New Patent ... 25&10%
Universal ... 20%
Wood's Universal ... 25%

Ship Augers and Bits—

Ford's ... 40%
C. E. Jennings & Co.:
L'Hommedieu's ... 15&10%
Watrous' ... 33⅓&10%
Ohio Tool Co.'s ... 40%
Snell's ... 40%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled ... gro. $2.75@3.00
Unhandled, Shouldered. gro. 63@66c
Unhandled, Patent ... gro. 66@70¢
Peg Awls:
Unhandled, Patent ... gro. $1@1.10
Unhandled, Shouldered. gro. 65@70c
Scratch Awls:
Handled, Common.. gro. $3.50@4.00
Handled, Socket.. gro. $11.50@12.00
Hurwood ... 40%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

First Quality ... $5.50@6.00
Second Quality ... $4.75@5.25

Axle Grease—See *Grease, Axle*

Axles— *Iron or Steel*

Concord, Loose Collar ... 5@5½c
Concord, Solid Collar ... 5@5½c
No. 1 Common ... 4@4½c
No. 1½ Com. New Style ... 4½@5c
No. 2 Solid Collar ... 4½@4¾c
Nos. 7, 8, 11 and 12 ... 60@5@60&10%
Nos. 13 to 14 ... 60@5@60&10%
Nos. 15 to 18 ... 60&10@70%
Nos. 19 to 22 ... 60&10@70%

Boxes, Axle—

Common and Concord, not turned.. lb. 4½@4½c
Common and Concord, turned ... lb. 5@5½c
Half Patent ... lb. 9@9½c

Bait— Fishing—

Heudryx:
A Bait ... 30%
B Bait ... 25%
Competitor Bait ... 30&5%

Balances— Sash—

Caldwell new list ... 50%
Pullman's ... 60%

Spring—

Spring Balances ... 60@60&5%
Chatillon's:
Light Spg. Balances ... 40&10%
Straight Balances ... 40%
Circular Balances ... 50%
Large Dial ... 30%
Pelouze ... 50%

Barb Wire—See *Wire, Barb.*

Bars— Crow—

Steel Crowbars, 10 to 40 lb., per lb ... 3@3½c

Towel—

No. 10 Ideal, Nickel Plate ... ℔ gro, $8.50

Beams, Scale—

Scale Beams, List Jan. 12, '85.. 40&10%
Chatillon's No. 1 ... 30%
Chatillon's No. 2 ... 40%

Beaters— Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz $0.85; Tinned ... $1.00
No. 11 Wire Coppered ℔ doz. $1.10; Tinned ... $1.20
No. 10 Wire Galvanized ... ℔ doz. $1.75
Western W. G. Co.
No. 1 Electric ... ℔ gro. $7.80
No. 2 Buffalo ... ℔ gro. $9.00
No. 3 Perfection Dust ... ℔ gro. $8.00

Egg—

Holt-Lyon Co.:
Holt, No. A, Japanned ... ℔ doz. $1.20
Holt, No 1, Tinned ... ℔ doz. $1.50
Holt, No. B, Japanned ... ℔ doz. $2.00
Holt, No. 2, Tinned ... ℔ doz. $2.25
Lyon, No 1, Japanned ... ℔ doz. $1.25
Lyon, No. 3, Japanned ... ℔ doz. $1.50
Lightning Chain, ℔ gro ... $15.00
National Mfg. Co.: ℔ gro.
No. 1 Dover, Family size ... $7.00
No. 2 Dover, Hotel size ... 14.00
Taplin Mfg. Co.: ℔ gro.
No. 60 Improved Dover ... $6.00
No. 75 Improved Dover ... 6.50
No. 100 Improved Dover ... 7.00
No. 102 Improved Dover, Tin'd ... 8.50
No. 150 Improved Dover, Hotel ... 15.00
No. 152 Imp'd Dover, Hotel, Tin'd ... 17.00
No. 200 Imp'd Dover Tumbler ... 8.50
No. 202 Imp'd Dover Tumbler, Tin'd ... 9.50
No. 300, Imp'd Dover Mammoth, ℔ doz ... $25.00
Western, W. G. Co., Buffalo ... $7.00
Wonder (S. S. & Co.) ... ℔ gro. net, $6.00

Bellows—

Blacksmith, Standard List.. 75@75&5%

Blacksmiths'—

Inch..	*30*	*32*	*34*	*36*	*38*	*40*
Each..	*$3.50*	*3.75*	*4.25*	*4.80*	*5.35*	*6.15*

Extra Length:
Each.. $4.00 4.55 5.10 5.60 6.40 7.50

Molders—

Inch	*10*	*12*	*14*
Doz	*$8.50*	*10.00*	*13.00*

Hand—

Inch	*6*	*7*	*8*	*9*	*10*
Doz	*$4.25*	*4.50*	*5.00*	*6.50*	*7.75*

Net Prices.

Bells— Cow—

Ordinary goods ... 75&5@75&10%
High grade ... 70@10@70&10&5%
Jersey ... 75&10%
Texas Star ... 50%

Door—

Abbe's Gong ... 45%
Barton Gong ... 55%
Home, R. & E. Mfg. Co.'s ... 55&10%
Lever and Pull, Sargent's ... 60&10&10%
Yankee Gong ... 55%

Hand—

Hand Bells, Polished, Brass ... 60& @60&10%
White Metal ... 60%
Nickel Plated ... 30@50&5%
Swiss ... 60@60&7½%
Cone's Globe Hand Bells ... 33⅓&33⅓&10%
Silver Chime ... 33⅓@33⅓&10%

Miscellaneous—

Farm Bells ... lb. 2½@2½
Steel Alloy Church and School ... 50&10@60&5%
American Tube & Stamp'g Co. Gongs .. 75%
Table Call Bells ... 50&5&10%
Trip Gong Bells ... 35&10@60%

Belting— Rubber—

Agricultural (Low Grade) .. 75@75&5%
Common Standard ... 70@70&10%
Standard ... 65@70%
Extra ... 60&5@60&10%
High Grade ... 50&5@50&10%

Leather—

Extra Heavy, Short Lap ... 60@60&5%
Regular Short Lap 60&10@60&10&10%
Standard ... 70@70&5%
Light Standard ... 70&10%
Cut Leather Lacing ... 60&10%
Leather Lacing Sides, per sq. ft .. 18c

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender ... 40%
Green River Tire Benders and Upsetters ... 30%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.

Bicycle Goods—

John S. Leng's Son's 1902 list:
Chain ... 50%
Parts ... 50%
Spokes ... 50%
Tubes ... 60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks— Tackle—

Common Wooden ... 70@10@75&5%
Hollow Steel Blocks, with Ford's Patent Sheaves ... 50&10%
Lane's Patent Automatic Lock and Junior ... 30%
Stowell's Novelty, Mal. Iron ... 50&10%
Stowell's Self Loading ... 60%
See also *Machines, Hoisting.*

Boards, Stove—

Zinc, Crystal, &c ... 30&10@40&10%

Bolts—
Carriage, Machine, &c.—

Common Carriage ... 75@ ... %
Phila. Eagle, $3.00 list May 24, '99 ... 80&10%
Bolt Ends, list Feb. 14, '95 ... 75@ ... %
Machine ... 75@75&5%
Machine with C. & T. Nuts ... 70&5@ ... %

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch	*3*	*4*	*5*	*6*	*8*
Per doz	*$0.26*	*.30*	*.39*	*.47*	*.65*

Cast Iron Spring Foot:

Inch	*6*	*8*	*10*
Per doz	*$1.00*	*1.25*	*1.75*

Cast Iron Chain, Flat, Japanned:

Inch	*6*	*8*	*10*
Per doz	*$0.75*	*1.05*	*1.30*

Cast Iron Shutter, Brass Knobs:

Inch	*6*	*8*	*10*
Per doz	*$0.87*	*.90*	*1.00*

Wrt Barrel, Jap'd. 75&10@75&10&10%
Wrought " Bronzed. 40&5@50&10%
Wrought Flush, B. K.. 50&10@60&10%
Wrought Shutter ... 40&10&10@60&5%
Wrought Square Neck ... 50@50&10%
Wrought Sunk, Flush ... 50@50&10%
Ives' Patent Door ... 60%

Stove and Plow—

Plow ... 65&10@ ... %
Stove ... 50&5@30&10&5%

Tire—

Common ... 72½&10@72½&10&5%
Norway Iron ... 80@80&10%
American Screw Company:
Norway Phila., list Oct. 16, '84 ... 80%
Eagle Phila. list Oct. 16, '84 ... 33⅓%
Bay State, list Dec. 28, '99 ... 72½%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84 ... 80%
Eagle Phila., list Oct. 16, '84 ... 33⅓%
Eclipse, list Dec. 28, '99 ... 72½%
Russell, Burdsall & Ward Bolt & Nut Co.
Empire, list Dec. 28, '99 ... 72½%
Norway Phila., list Oct. '84 ... 80%
Union Nut Co.:
Tire Bolts ... 72½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch	*1¼*	*1½*	*1¾*	*2*
Per doz	*$4.50*	*5.00*	*5.75*	*7.25*
Inch			*2¼*	*2½*
Per Doz			*$8.65*	*11.50*

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each ... 25%

Boxes, Mitre—

C. E. Jennings & Co ... 25&10%
Langdon ... 15&10%
Perfection ... ℔ doz. $36 00
Schatz ... 40%

Braces—

Common Ball, American .. $1.15@1.25
Barber's ... 50&10&10@60&10%
Fray's Genuine Spofford's ... 40%
Fray's No. 70 to 120, 81 to 123, 207 to 414 ... 60%
C. E. Jennings & Co ... 50&5&10%
Mayhew's Ratchet ... 60%
Mayhew's Quick Action Hay Patent ... 50%
Millers Falls Drill Braces ... 25&10%
P., S. & W. Co. Peck's Patent 60&10@65%

Brackets—

Wrought Steel ... 80@10@ ... %
Bradley's Wire Shelf:
Full cases ... 30&10&10%
Broken cases ... 80&10%
Griffin's Pressed Steel ... 80%
Griffin's Folding Brackets ... 70&10%
Stowell's Cast Shelf ... 75%
Stowell's Sink ... 50%
Western, W. G. Co., Wire ... 60&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—

Western, W. G. Co ... 80%
Wire Goods Co ... 75@75&10%

Buckets, Well and Fire—See *Pails*

Bucks Saw—

Hoosier ... ℔ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts— Brass—

Wrought list Sept., '96 ... 20@30%
Cast Brass, Tiebout's ... 50%

Cast Iron—

Fast Joint, Broad ... 50@50&10%
Fast Joint, Narrow ... 50@50&10%
Loose Joint ... 70&5@70&10%
Loose Pin ... 70&5@70&10%
Mayer's Hinges ... 70&5@70&10%
Parliament Butts ... 70&5@70&10%

Wrought Steel—

Table and Back Flaps ... 75%
Narrow and Broad ... 75%
Inside Blind ... 75&10%
Loose Pin ... 75%
Loose Pin, Ball and Steeple Tip ... 80&20%
Japanned, Ball Tip Butts. 70&10%
Bronzed Wrt. Nar. and Inside Blind Butts ... 55&10%

Extra 10@10&10%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series ... 5%
1200 series ... 33⅓%
200, 300, 600 and 900 series ... 40&10%
Hendryx Bronze:
700, 800 series ... 40&10%
Hendryx Enameled ... 40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong ... per lb. .4@4½¢
Sharp, 1 prong ... per lb. 4½@4¾¢
Perkins' Blunt Toe ... cents, ℔ ℔ .365
Perkins' Sharp Toe ... cents, ℔ ℔ .415

Can Openers—See *Openers, Can*

Cans, Milk—

	5	8	10 gal.	
Illinois Pattern.	$1 50	2.00	2.25	each.
Iowa Pattern...	....	2.35	2.50	each.
	20	30	40	qts.
New York Patt'rn	1.65	2.40	2.75	each.
Baltimore Patt'rn	....	1.80	2.00	each.

Cans, Oil—

Buffalo Family Oil Cans:			
3	5	10 gal.	
$48.00	64.20	120.60	gro., net

Caps—Percussion—

Eley's E. B. 60c
G. D. ..... *per M* 5½@55c
F. J. ..... *per M* 40@45c
G. E. ..... *per M* 50@52c
Musket ..... *per M* 62@63c

Primers—

Berdan Primers, $2.00 per M... 20@5%
B. L Caps (Sturtevant Shells) $2.00 per M 20%
All other primers per M. $1.52@$1.60

Cartridges—

Blank Cartridges:
22 C. F., $5.50 ..... 10@5%
38 C. F., $7.00 ..... 10@5%
22 cal. Rim, $1.50 ..... 10@5%
32 cal. Rim, $2.75 ..... 10@5%
B. B. Caps, Con., Ball Swgd. $1.20
B. B. Caps, Round Ball $1.40
Central Fire 25%
Target and Sporting Rifle ..... 15@5%
Primed Shells and Bullets ..... 15@10%
Rim Fire Sporting 50%
Rim Fire, Military ..... 15@5%

Cases, Show—

Sun, No. 102, Silent Salesman, 6 ft., $25.00

Casters—

Bed ..... 70@70&10%
Plate ..... 60@5@60&10%
Philadelphia ..... 75@75@5%
Boss ..... 70&10%
Ross Anti-Friction ..... 70&10%
Gem (Roller Bearing) ..... 75@5%
Martin's Patent (Phœnix) 45%
Smith & Hemenway Co 33⅓%
Standard Ball Bearing 45%
Tucker's Patent low list 30%
Yale (Double Wheel) low list 45%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Coil—

American Coil, Jobbers' Shipments:

3-16	*¼*	*5-16*	*⅜*	*7-16*	*½*	*9-16*
8.00	*5.30*	*4.15*	*3.75*	*3.60*	*3.50*	*3.45*
⅝	*¾*	*⅞*	*1 to 1¼ inch.*			
3.30	*3.25*	*3.50*	*3.15*	*per 100 lb.*		

German Coil ..... 60&10@10%

Halters and Ties—

Halter Chains ..... 60@10@60@10@10%
German Pattern Halter Chains, list July 24, '97 ..... 60@10&10@.....%
Cow Ties ..... 60@60@10%

Trace, Wagon, &c.—

Traces, Western Standard: 100 pair
6½—6-3, Straight, with ring... $23.50
6½—6-2, Straight, with ring.. $24.50
6½—8-2, Straight, with ring.. $28.00
6½—10-2, Straight, with ring.. $32.00
Add 2¢ per pair for Hooks.
Twist Traces 2¢ per pair higher than Straight Link.
Trace, Wagon and Fancy Chains.. 60@5@60@10@5%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron ..... 60@10@60@10@5%
Brass ..... 60@10@60@10@10%
Safety Chain ..... 75@75&10@5%
Gal. Pump Chain ..... *lb* 4¼@4¾c
Covert Mfg. Co.
Breast ..... 40&2%
Halter ..... 40&2%
Heel ..... 40&2%
Rein ..... 40&2%
Stallion ..... 40&2%
Covert Sad. Works:
Breast 70%
Halter 70%
Hold Back 70%
Rein 70%
Oneida Community:
Am. Coil and Halters ..... 40@40&5%
Am. Cow Ties ..... 45@50%
Eureka Coil and Halter ..... 45@50&5%
Niagara Coil and Halter ..... 45@50&5%
Niagara Cow Ties ..... 45&5@50&10&5%
Niagara Wire Dog Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain ..... 70&10%
Universal Dbl-Jointed Chain 50%

Chalk—(From Jobbers.)

Carpenters' Blue ..... *gro.* 40c
Carpenters', Red ..... *gro.* 35c
Carpenters', White ..... *gro.* 30c
See also Crayons.

Checks, Door—

Bardsley's 45%
Columbia ..... 50&10%
Eclipse ..... 60&10%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools 55%
Youths' Chests, with Tools 40%
Gentlemens' Chests, with Tools 30%
Farmers', Carpenters', etc., Chests, with Tools 20%
Machinists' and Tipp Fitters' Chests, Empty 50%
C. E. Jennings & Co.'s Machinists' Tool Chests ..... 33⅓&10%

Chisels—

Socket Framing and Firmer

Standard List ..... 70@70@10%
Buck Bros. 30%
Charles Buck 30%
C. E. Jennings & Co. Socket Firmer No. 10 ..... 60&10%
C. E. Jennings & Co. Socket Framing No. 15 ..... 60&10%
Ohio Tool Co.'s 70%
Swan's 70%
L. & I. J. White ..... 30@30&5%

Tanged—

Tanged Firmers ..... 40@5@40&10%
Buck Bros. 30%
Charles Buck 30%
C. E. Jennings & Co. Nos. 191, 181 ..... 16⅔&10%
L. & I. J. White, Tanged ..... 25&10%

Cold—

Cold Chisels, good quality..lb. 13@15c
Cold Chisels, fair quality..lb. 11@12c
Cold Chisels, ordinary.....lb. 9 @10c

Chucks—

Beach Pat., each $8.00.. ..... 33&5%
Pratt's Positive Drive 35%
Empire 25%
Blacksmiths' 25%
Skinner Patent Chucks:
Independent Lathe Chucks 50%
Universal 50%
Combination 50%
Drill Chucks, New Model 30%
Drill Chucks, Standard 40%
Drill Chucks, Skinner Patent, 0, 1, 2 ..... 40%
Drill Chucks, Skinner Patent, 3, 4, 5, 6, 7, 8 ..... 30%
Drill Chucks, Positive Drive 30%
Planer Chucks 25%
Face Plate Jaws 40%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination 50%
Czar Drill 35%
Combination Geared Scroll 40%
Geared Scroll 40%
Independent 50%
Independent Steel 40%
Union Drill 45%
Universal 50%
Independent Iron Face Plate Jaws.. 40%
Independent Steel Face Plate Jaws.. 40%
Westcott Patent Chucks:
Lathe Chucks 50%
Little Giant Auxiliary Drill 45%
Little Giant Double Grip Drill 45%
Little Giant Drill, Improved 45%
Oneida Drill 45%
Scroll Combination Lathe 45%

Clamps—

Adjustable, Hammers' ..... 20@20&5%
Cabinet, Sargent's ..... 50&10%
Carriage Makers', P., S. & W. Co. 50%
Carriage Makers' Sargent's 60%
Besly, Parallel ..... 33⅓&10%
Linemans' Utica Drop Forge & Tool Co 40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners, Drain—

Iwan's Champion, Adjustable 55%
Iwan's Champion, Stationary 40%

Sidewalk—

Star Socket, All Steel.... ₱ doz. $4.05 net
Star Shank, All Steel.... ₱ doz. $3.24 net
W. & C. Shank, All steel, ₱ doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—

Foster Bros. 30%
New Haven Edge Tool Co.'s 45%
Fayette R. Plumb.. ... 33⅓@33⅓&10%
L. & I. J. White 30%

Clippers—

Chicago Flexible Shaft Company:
'98 Chicago Horse ..... $8.75 } 15%
1902 Chicago Horse ..... $10.75 }
20th Century Horse, each, $5.00 ..... 20%
Lightning Belt ..... $15.00 } 15%
Chicago Belt ..... $20.00 }
Stewart's Patent Sheep $18.50

Finger Nail Clippers—

Smith & Hemenway Co..... doz. net $2.00

Clips, Axle—

Eagle 5-16 and ⅜ inch.... 75@75&10%
Norway, 5-16 and ⅜ inch.. 60@10@70%

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks. 70@10@75%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—

Brass, Walter B. Stevens & Son's list. 40%
Embossed, Gilt, Walter B. Stevens & Son's list ..... 30&10%
Leather, Walter B. Stevens & Son's list 40%

Combs, Curry—

Metal Stamping Co ..... 30&10%

Mane and Tail—

Covert's Saddlery Works ..... 60&10%

Compasses, Dividers, &c.

Ordinary Goods ..... 75@5@75@10%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Double 65%
Calipers, Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%

Compressors, Corn Shock—

J. B. Hughes' ₱ doz $2.50

Conductor Pipe, Galva—

L. C. L. to Dealers:

Territory.	*Nested.*	*Not nested.*
A. Eastern.	*75@7½%*	*75@2½%*
B. Eestern	*75@7½@2½%*	*75@7½%*
Central.....	*75@7½%*	*75%*
Southern ..	*70@10%*	*70@5%*
S. Western..	*70@7½%*	*70@2½%*

Terms, 60 days, 2% cash, 10 days. Factory shipments generally delivered.
See also *Eave Troughs.*

Coolers, Water—

Gal, each	3	4	6	8	
Labrador	$1.20	$1.50	$1.80	$2.10	2.70
Gal.	3	4	5	6	8
Iceland, ea.	$1.80	$2.10	2.40	$3.00	
Gal.	2	3	4	6	8
Galv. Lined Ea.	$1.85	$2.00	$2.2	$2.60	$3.90

25%

Ga.v. Lined side handles

Gal.	2	3	4	6	8
Each.	$1.95	$2.15	$2.40	$3.30	$4.15..25%

Coopers' Tools—

See *Tools, Coopers'.*

Cord—Sash—

Braided, Drab ..... *lb.* 35c
Braided, White, Com ..... *lb.* 22@23c
Cable Laid Italian..lb. A, 18c; B, 16c
Common India ..... *lb.* 10@10½c
Cotton Sash Cord, Twisted.... 20@25c
Patent Russia ..... *lb.* ..@14c
Cable Laid Russia ..... *lb.* ..@15c
India Hemp, Braided ..... *lb* ..@18c
India Hemp, Twisted ..... *lb.* 12@13c
Patent India, Twisted ..... *lb.* 12@13c

Anniston Cordage Co.: Braided Cotton.
Old Glory, Nos. 7 to 12 ..... ₱ lb 40 ¢
Anniston, Nos. 7 to 12 ..... ₱ lb 25 ¢
Old Colony, Nos. 7 to 12 ..... ₱ lb 25 ¢
Anniston Drab, Nos. 7 to 12 ..... ₱ lb 30 ¢
Pearl Braided, cotton, No. 6 ₱ lb, 24¢; Nos. 7 to 12, 28¢.
Eddystone Braided Cotton .No. 6 ₱ lb 27¢
Harmony Cable Laid Italian. No. 7 to 10 ..... ₱ lb 33¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 14¢
Cable Laid India ..... 12¢
Braided India ..... 18¢
Samson, Nos. 7 to 12:
Braided, Drab Cotton ..... ₱ lb 36½¢
Braided, Italian Hemp... ..... ₱ lb 36¢
Braided, Linen ..... ₱ lb 53¢
Braided, White Cotton or Spot. ₱ lb 33¢
Massachusetts, White ..... ₱ lb 28 ¢
Massachusetts, Drab ..... ₱ lb 32 ¢
Phœnix, White, No's 7 to 12 ..... 24¢
No. 6 cords, 1¢ extra.
Silver Lake:
A quality, Drab ..... 40¢
A quality, White ..... 35¢
B quality, Drab ..... 35¢
B quality, White ..... 30¢
Italian Hemp ..... 40¢
Linen ..... 57½¢

Wire, Picture—

List Oct., '00. 85¢10¢10@85¢10¢10¢5%

Cradles—

Grain ..... *40¢12½%*

Crayons—

White Round Crayons, gross..5½@6c
Cases, 100 gro., $5.00, at factory.
D. M. Steward Mfg. Co.
Jumbo Crayons ..... gr. $3.50
Metal Workers' Crayons. gr. $2.50
Soapstone Pencils, round, flat or square ..... gr. $1.50
Rolling Mill Crayons ..... gr. $2.50
Railroad Crayons (composition) gr. $2.00
Case lots 20%
Zelnicker's Lumber:
Red, Blue, Green ..... ₱ gro. $6.50
Black ..... ₱ gro. $4.00
See also *Chalk.*

Crooks, Shepherds'—

Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden 50%

Cutlery, Table—

International Silver Company:
No. 12 Medium Knives, 1847.. ₱ doz. $3 50
Star, Eagle, Rogers & Hamilton and Anchor ..... ₱ doz. $3.00
Wm. Rogers & Son ..... ₱ doz. $2 50

Cutters—Glass—

H. H. Mayhew Co 40%
Red Devil 50%
Smith & Hemenway Co 50%
Woodward 40%

Meat and Food—

American 30%

Nos.	1	2	3	4	5	6
Each	$5	$7	$10	$25	$50	$60

Enterprise ..... 25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

Dixon's, ₱ doz. ..... 30&10@40%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal ..... 40&10@50%
Little Giant, ₱ doz. ..... 33⅓@40%

Nos.	305	310	312	300	322
	$35.00	$48.00	$44.00	$72.00	$68.00

N. E Food Chopper 40%
New Triumph No. 605, ₱ doz. $24.00 .. 30&10&40%
Ruswin Food No. 1, $24 00; No. 2, $27.00 45&10&10%
Sterling ..... 40@40&10%
No 1....$3.00 each No. 2.. $2.50 each
Woodruff's, ₱ doz ..... 30&10@40%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9.. 55%
Kraut Cutters 36 x 12, 40 x 12..... 40%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife ..... ₱ doz. $8.00
Combined Slaw Cutter and Corn Grater ..... ₱ doz. $4.00
Sterling, $6.00 each 33⅓%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife, ₱ gr....$18@$20
Slaw Cutters, 2 Knife, ₱ gr....$22@$36

Tobacco—

All Iron, Cheap.....doz. $1.25@$1.50
Enterprise ..... 25@50%
National, ₱ doz. No. 1, $21; No. 2, $18.. 40%
Sargent's, ₱ doz., No. 2 ..... 60%
Sargent's No 12 and 21 ..... 60&10%

Washer—

Appleton's, ₱ doz. $16.00.... 50&10&10%
Bonney's 33⅓%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger...per doz., $9.00
Iwan's Improved Post Hole Auger. 40&5%
Iwan's Vaughan Pattern Post Hole Augers, ₱ doz. $6.50
Iwan's Perfection Post Hole Digger... ₱ doz. $8.50
Iwan's Split Handle Post Hole Diggers, ₱ doz. $7.50
Kohler's Universal ..... ₱ doz, $15.00
Kohler's Little Giant ..... ₱ doz. $12.60
Kohler's Hercules ..... ₱ doz. $10.00
Kohler's Invincible ..... ₱ doz. $9.60
Kohler's Rival ..... ₱ doz. $8.50
Kohler's Pioneer ..... ₱ doz. $7.50
Never-Break Post Hole Diggers, ₱ doz. $24.00 ..... 60%
Samson, ₱ doz. $34.00 ..... 25%

Dividers—See *Compasses.*

Doors Screen—

Phillips', style E, ¾ in. ..... ₱ doz, $10.50
Phillips', style 077, ¾ in. ..... ₱ doz, $8.00
Phillips', style x-y, ¾ in. ..... ₱ doz, $11.00
Porter's Main, No. 6 ..... ₱ doz. $6 75
Porter's Ornamental, No. 70. ₱ doz. $10.50
Porter's No. 99 ..... $9.00
Porter's No. 44 ..... $10.75

Drawers, Money—

Sun Money Drawers, No. 5, ₱ doz. $9.50; No. 6, with Bell, $10.50; No. 6, with Gong, $10.50.
Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15; No. 3, $12; No. 4, $18

Drawing Knives—

See *Knives, Drawing.*

Drills and Drill Stocks—

Common Blacksmiths' Drill...each $1.50@$1.75
Breast, Millers Falls ..... 15&10%
Breast, P., S. & W ..... 40&5%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills Nos. 2 and 3 ..... 16⅔&10%
Johnson's Drill Points ..... 16⅔&5&10%
Millers Falls Automatic Drills ..... 33⅓&10%
Ratchet, Curtis & Curtis 25%
Ratchet, Parker's 40%
Ratchet, Weston's 33⅓%
Ratchet, Whitney's, P. S. & W 50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓%

Twist Drills—

Bit Stock ..... *60¢10@60¢10¢10%*
Taper and Straight Shank ..... *60¢10@60¢10¢5%*

Drivers, Screw—

Screw Driver Bits..per doz. ..45@60c
Baisey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9..40%
Buck Bros' Screw Driver Bits 30%
Champion 50%
Edson 60%
Fray's Hol. H'dle Sets, No. 3, $12.00 50%
Gay's Double Action Ratchet 35%
Goodell's Auto 50&10&10@50&10&10&5%
Hurwood 40%
Mayhew's Black Handle 40%
Mayhew's Monarch ..... 40&10%
Millers Falls, Nos. 20 and 21 ..... 25&10%
Millers Falls, Nos. 11, 12, 41, 42..... 15&10%
Never Turn 60%
New England Specialty Co..... 50%
Sargent & Co.'s:
Nos. 1 and 60 ..... 50&10&10%
Nos. 50 and 55 ..... 60&10%
Nos. 20 and 40 ..... 70&10%
Smith & Hemenway Co ..... 40&5%
H. D. Smith & Co.'s, Perfect Handle.. 40%
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles 30@60&10&10%
No. 86 ..... 70@70&10&10%
Swan's:
Nos. 65 to 68 ..... 50%
No. 40 ..... 40&10%
Nos. 25, 35 and 45 ..... 20&10&10%

Eave Trough, Galvanized

Territory. L. C. L.
A. Eastern ..... *80¢10%*
B. Eastern ..... *80¢10¢5%*
Central ..... *80¢10%*
Southern ..... *75¢16⅔%*
S. Western ..... *75¢10¢5%*
Terms, 2% for cash. Factory shipments generally delivered.
See also *Conductor Pipe and Elbows.*

Elbows and Shoes—

Factory shipments *60%*
Perfect Elbows (S. S. & Co.) 30%

Emery, Turkish—

	4 to 16	*5 to 150*	*Flour*
Kegs ..... *lb.*	*5c*	*5½c*	*3¼c*
½ Kegs ..... *lb.*	*5½c*	*5¾c*	*3¼c*
Kegs ..... *lb*	*5c*	*6c*	
10-lb cans. 10 in case.	*6½c*	*7c*	*8c*
10-lb. cans, less than 10.	*10c*	*10c*	*8c*

NOTE.—*In lots 1 o 3 tons a discount of 10% is given.*

Extractors, Lemon Juice

—See *Squeezers, Lemon.*

Fasteners, Blind—

Zimmerman's ..... 50&10%
Walling's 50%

Cord and Weight—

Ives 40%

Faucets—

Cork Lined ..... *50@50&10%*
Metallic K. & Leather Lined 70@70&10%
Red Cedar ..... *40@40&10%*
Petroleum ..... *70@10@75%*
B. & L. B. Co.:
Metal Key ..... 60&10%
Star 60%
West Lock ..... 50&10%
John Sommer's Peerless Tin Key.... 40%
John Sommer's Boss Tin Key 50%
John Sommer's Victor Metal Key. 50&10%
John Sommer's Duplex Metal Key.... 60%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined... 50%
John Sommer's Reliable Cork Lined 50&10%
John Sommer's Chicago Cork Lined.. 60%
John Sommer's O. K. Cork Lined..... 50%
John Sommer's No Brand, Cedar..... 50%
John Sommer's Perfection Cedar..... 40%
McKenna, Brass:
Burglar Proof, N. P 35%
Improved, ¾ and ⅞ inch 35%
Self Measuring:
Enterprise, ₱ doz. $36.00 ..... 40&10%
Lane's, ₱ doz. $36.00 ..... 40&10%
National Measuring, ₱ doz. $36..40&10%

Felloe Plates—

See *Plates, Felloe.*

Files—Domestic—

List revised Nov. 1, 1899.
Best Brands ..... *70¢10@75¢5%*
Standard Brands .75¢10@75¢10¢10%
Lower Grade.....75¢10¢10@80¢10%

Imported—

Stubs' Tapers, Stubs' list, July 24, '97 ..... 30%

Fixtures, Grindstone—

Net Prices:

Inch....	*15*	*17*	*19*	*21*	*24*
Per doz.	*$2.15*	*2.35*	*3.25*	*3.75*	*4.40*

P., S. & W. Co ..... 30&10@40%
Reading Hardware Co 60%
Sargent's ..... 60&10&10%
Stowell's Giant Grindstone Hanger, ₱ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy ..... 50&10&10%
Stowell's Grindstone Fixtures Light... 60&10%

Fodder Squeezers—

See *Compressors.*

Forks—

Base Discounts Aug. 1, 1893, list;
Hay, 2 tine ..... 50&10&5%
Boys' & Fish, 2 tine ..... 50&10&5%
Hay & Boys', 3 tine ..... 60&5%
Hay & Boys', 4 tine 66⅔%
Champion Hay 66⅔%
Hay & Header, long 3 tine 65%
Header, 4 tine 65%
Barley, 4 & 5 tine, Steel ..... 60&20%
Manure, 4 tine ..... 60&15&2½%
Manure, 5 and 6 tine ..... 66⅔&2½%
Spading ..... 70&2½%
Potato Digger, 6 tine ..... 60&10%
Sugar Beet ..... 40&10%
Coke & Coal ..... 40&10%
Heavy Mill & Street 65%
Iowa Dig-Ezy Potato ..... 60&10%
Victor, Hay ..... 60&15&2½%
Victor, Manure 66⅔%
Victor, Header 65%
Champion, Hay 66⅔%
Champion Header 65%
Champion, Manure ..... 60&15&2½%
Columbia, Hay ..... 60&20%
Columbia, Manure 70%
Columbia, Spading ..... 70&12½%
Hawkeye Wood Barley 40%
W. & C. Potato Digger ..... 60&12½%
Acme Hay ..... 60&10&5%
Acme Manure, 4 tine ..... 60&20&7½%
Dakota Header ..... 65&15&5%
Jackson Steel Barley ..... 65&15&5%
Kansas Header 66⅔%
W. & C. Favorite Wood Barley 40%
Plated.—See *Spoons.*

Fountains, Stock—

Double Dewey ..... ℔ doz. $13.00

Frames— Saw—

White, Straight Bar, per doz. 75@80c
Red, Straight Bar, per doz $1.00@$1.25
Red, Double Brace, per doz. $1.40@1.50

Freezers Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	*$1.25*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—

Per 1000 Feet.

Hemp $2.75
Cotton 3.30
Waterproof Single Taped 3.65
Waterproof Double Taped 4.40
Waterproof Triple Taped 5.15

Extra 5%

Gates, Molasses and Oil—

Stebbins' Pattern ..... 80&10@80&10&5%

Gauges—

Marking, Mortise, &c. ..... 50&10&5@50&10&10&5%
Chapin-Stephens Co.:
Marking, Mortise, etc. ..... 50&10@50&10&10%
Scholl's Patent ..... 50&10@50&10&10%
Door Hangers ..... 50@50&10%
Fulton's Butt Gauge ..... 30&10%
Stanley R. & L. Co.'s Butt & Babbet Gauge ..... 20@20&10&10%
Wire, Brown & Sharpe's 25%
Wire, Morse's 25%
Wire P., S. & W. Co ..... 30&10%

Gimlets— Single Cut—

Nail, Metal, Assorted, gro. $1.40@1.50
Spike, Metal, Assorted gro. $2.80@3.50
Nail, Wood Handled, Assorted, gro. $1.75@2.00
Spike, Wood Handled, Assorted gro. $4.85@4.50

Glass, American Window

See *Trade Report.*

Glasses, Level—

Chapin-Stephens Co ..... 60@60&10&10%

Glue—Liquid Fish—

Bottles or Cans, with Brush ..... 25@50%
Cans (½ pts., pts., qts., ¼ gal., gal.) ..... 25@48%
International Glue Co. (Martin's) ..... 40&10@50%

Grease Axle—

Common Grade ..... *gro. $4.50@5.50*
Dixon's Everlasting ..... 10-℔ pails, ea. 85¢
Dixon's Everlasting, in bxs. ..℔ doz. 1 ℔ $1.20; 2 ℔ $2.00

Grips, Nipple—

Perfect Nipple Grips ..... 40&10&2%

Griddles, Soapstone—

Pike Mfg. Co ..... 33⅓&33⅓&10%

Grindstones—

Bicycle Emery Grinder $6.50
Bicycle Grindstones, each ..... $2.50@3.00
Pike Mfg. Co:
Improved Family Grindstones, per inch, per doz. $2.00
Pike Mower Knife and Tool Grinder, each $6.00
} 33⅓%
Velox Ball Bearing, mounted, Angle Iron Frames ..... each, $3.25

Halters and Ties—

Covert Mfg. Co.:
Web ..... 40&2½%
Jute Rope ..... 40&5&5%
Sisal Rope 30%
Cotton Rope ..... 45¢
Hemp Rope ..... 45&2%
Covert's Saddlery Works:
Web and Leather Halters 70%
Jute and Manila Rope Halters 70%
Sisal Rope Halters ..... 60&20%
Jute, Manila and Cotton Rope Ties 70%
Sisal Rope Ties ..... 60&10%

Hammers—Handled Hammers—

Heller's' Machinists' ..... 40&10@40&10&10%
Heller's Farriers ..... 40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40@40&10&10%
Peck, Stow & Wilcox ..... 40&10&5%
Fayette R. Plumb:
Plumb, A. E. Nail ..... 33⅓&7½@33⅓&10&7½%
Engineers' and B. S. Hand ..... 50&7½&5@50&10&7½&5%
Machinists' Hammers ..... 50&5@50&10&5%
Riveting and Tinners' ..... 40&2½@40&10&2½%
Sargent's C. S. New List 40%

Heavy Hammers and Sledges—

Under 3 lb. ..... *lb 50¢*
3 to 5 lb. ..... *lb 40¢*
Over 5 lb. ..... *lb. 30¢*
} 75&10&5 @30%
Wilkinson's Smiths' ..... 9½¢@10¢ lb.

Handles—

Agricultural Tool Handles—

Axe, Pick, &c. ..... 40@50&5%
Hoe, Rake, &c. ..... 45@50&5%
Fork, Shovel, Spade, &c.:
Long Handles ..... 45@50&5%
D Handles 40%

Cross-Cut Saw Handles—

Atkins' ..... 40&5%
Champion ..... 45@45&10%
Disston's 50%

Mechanics' Tool Handle. 75

Auger, assorted ..... *gro. $2.50@$2 85*
Brad Awl ..... *gro. $1.65@$1 85*
Chisel Handles:
Apple Tanged Firmer, gro. ass'd. *$2.40@$2.65*
Hickory Tanged Firmer, gro. ass'd. *$2.15@$2.40*
Apple Socket Firmer, gro. ass'd, *$1.75@$1.95*
Hickory Socket Firmer, gro. ass'd. *$1.45 @ $1.60*
Hickory Socket Framing, gro. ass'd. *$1.60@$1.75*
File, assorted ..... *gro. $1.30@$1.40*
Hammer, Hatchet, Axe, &c. *50%*
Hand Saw, Varnished, doz .80@85c
Not Varnished ..... *65@75c*
Plane Handles:
Jack, doz. 30c; Jack Bolted *75c*
Fore, doz. ..... *45c; Fore, Bolted 90c*
Chapin-Stephens Co.:
Carving Tool ..... 40@40&10%
Chisel ..... 65@65&10%
File and Awl ..... 65@65&10%
Saw and Plane ..... 40@40&10%
Screw Driver ..... 40@40&10%
Millers Falls Adj. and Ratchet Auger Handles ..... 15&10%
Nicholson Simplicity File Handle, ℔ gro. ..... $0.85@$1.50

Hangers—

NOTE.—*Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.*

Barn Door, New Pattern, Round Groove, Regular:

Inch	*3*	*4*	*5*	*6*	*8*
Single Doz.	*$0.90*	*1.25*	*1.60*	*1.95*	*2.50*

Barn Door, New England Pattern, Check Back, Regular:

Inch	*3*	*4*	*5*	*6*
Single Doz.	*$1.30*	*1.85*	*2.50*	*3.90*

Allith Mfg. Co.
Reliable No. 1 ..... per. doz. $12.00
Reliable No. 2 ..... per. doz. $15.00
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin 25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door 50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle 60%
Roller Bearing ..... 60&10%
Lane Bros. Co.:
Parlor, Ball Bearing $4.15
Parlor, Standard $3.35
Parlor, New Model $3.85
Parlor New Champion $2.25
Barn Door, Standard, 5&10&5%
Hinged $6.40
Covered ..... 50&10&10%
Special ..... 50&10&10&5%
Lawrence Bros.:
Advance 90%
Cleveland ..... 60&10%
Crown 60%
Giant ..... 50&10%
New York 60%
Peerless ..... 60&10%
Sterling 60%
Swing, No. 95 ..... 60%
Union, No. 44, $5.00: No. 45 $7.00; No. 46, $9.00.
McKinney Mfg. Co.:
No. 1, Special, $15 ..... 60&10%
No. 2, Standard, $18 ..... 60&10%
Hinged Hangers, $16 ..... 50%
Meyers' Stayon Hangers 60%
C. S. Smith Mfg. Co.:
Lundy Parlor Door ..... 50&10%
Monarch Barn Door ..... 60&10%
Never Jump Hinge ..... 50&10%
Peerless ..... 60&10%
Perfection ..... 70&5%
Phœnix ..... 70&5%
Wagner's Adjustable ..... 70&10%
Warehouse Anti-Friction 60%
Richards Mfg. Co.:
Pioneer Wood Track No. 8 ..... $2.25
Imp'd Wood Track No. 5 ..... $2.35
Imp'd Steel Track No. 7 ..... $2.70
Imp'd Steel Track No. 7 ..... $2.65
Ball B'r'g Steel Track No. 9 ..... $2.50
Ball B'r'g Steel Track No. 10 ..... $2.50
Roller B'r'g Steel Track No. 11 ..... $2.45
Roller B'r'g Steel Track No. 12 ..... $2.40
Ball B'r'g Steel Track No 13 ..... $2.75
Roller B'r'g Steel Track No. 14 ..... $2 65
Ball B'r'g Trolley Track No. 15 ..... 40%
Ball Brg Trolley Track No. 19 ..... 40&5%
Ball Bearing Tandem Trolley Track No. 16 ..... 40%
Silent Adjustable Track No. 18 ..... 40%
Auto Adjustable Track No. 22 ..... 40%
Trolley B. D. No. 17 ..... $1.60
Trolley F. D. No. 120 ..... $2.70
Trolley F. D. No. 121 ..... $2.85
Trolley F. D. No. 151 ..... $3.00
Roller Bearing D. D. No. 25 ..... 70&5%
Roller Bearing D. S. B. D. ..... 70&5%
Anti Friction B. D. ..... 60&10%
Ives' Wood Track No. 1 ..... $2.15
Ives' Imp'd Wood Track No. 2 ..... $2.15
Safety Door Hanger Co.:
Storm King Saftey 60%
U. S. Standard Hinge 60%
Stowell Mfg. and Foundry Co.:
Acme Parlor Ball Bearing 40%
Ajax Hinge Door 60%
Apex Parlor Door ..... 50&10&5%
Atlas 60%
Extra 5@10% often given.
Baggage Car Door 50%
Climax Anti-Friction ..... 50&10%
Elevator 40%
Express 50%
Freight Car Door 60%
Interstate ..... 60&10%
Lundy Parlor Door ..... 50&10%
Magic 60%
Matchless ..... 60&10%
Nansen ..... 70&5%
Parlor Door ..... 50&10%
Railroad ..... 50&10%
Rex Hinge Door 60%
Street Car Door 50%
Steel, Nos. 300, 404, 500 ..... 50&10%
Underwriter's Fire Door 40%
Wild West Warehouse Door 50%
Zenith for Wood Track ..... 50&10%
A. L. Swett Iron Works:
Eagle ..... 60&10%
Hylo ..... 50&10%
Perfection 60%
Pilot 60%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing ..... 50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing ..... 60&10%
C. J. Roller Bearing ..... 60&10%
Cycle Ball Bearing 50%
Dwarf Ball Bearing 40%
Ives, Wood Track ..... 60&10%
L.T. Roller Bearing ..... 60&10&5%
New Era Roller Bearing ..... 50&10%
O. K. Roller Bearing ..... 60&10&5%
Prindle, Wood Track 60%
Richards' Wood Track 60%
Richards' Steel Track ..... 50&10%
Spencer Roller Bearing ..... 60&10%
Tandem Nos. 1 and 2 ..... 60%
Underwriters' Roller Bearing 40%
Velvet 50%
Wilcox Auditorium Ball Bearing 20%
Wilcox Barn Trolley No. 123 ..... 40%
Wilcox Elv. Door, Nos 112 and 122½ 50%
Wilcox Elv. Door, No. 132 ..... 40%
Wilcox Fire Trolley, Roller Bearing 30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century ..... 50&10&10%
Wilcox O. K. Steel Track 50%
Wilcox O. K. Trolley 50%
Wilcox Trolley Ball Bearing 40%
Wilcox Wideman Narrow Gauge, Ball Bearing 40%
For Track, see *Rail*

Hangers, Garment—

Western, W. G. Co ..... 70&10%

Gate—

Myers' Patent Gate Hangers, ℔ doz net 4.80

Hasps—

McKinney's Perfect Hasp, ℔ doz 50%

Hatchets—

Regular list ..... *40@40&5%*

Heaters, Carriage—

Clark, No. 3, $2.25; No. 3D, $2.5: No 3E, $4.25; No. 1, $4.50 each 17%
Clark Coal, $0.75 ℔ doz 10%

Hinges—

Blind and Shutter Hinges—

Surface Gravity Locking Blind:
(Victor; National; 1868 O P Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	*1*	*3*	*5*
Doz. pair	*$0.35*	*1.75*	*3.50*

Mortise Shutter:
(L. & P., O. S., Dixie, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter, (Buffalo, &c.)

No.	*1*	*1½*	*2*
Doz. pair	*$0.75*	*.70*	*.65*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50 ..... 10%
Parker ..... 70@75%
Reading's Gravity ..... 50&5%
Sargent's, Nos. 1, 3, 5, 11 & 13 ..... 70&10@75%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.80; with screws, $1.15.
Wrightsville H'dware Co.:
O. S., Lull & Porter ..... 7 &5%
Acme, Lull & Porter 75%
Queen City Reversible 75%
Stenger's Positive Locking, Nos. 1 & 3 ..... 70&10%
Shepard's Noiseless, Nos. 50, 55 ..... 70&10%
Niagara, Gravity Locking, No. 1, 3 & 5 ..... 75%
1868, Old Pat'n, Nos. 1, 3 & 5 ..... 75%
Tip Pat'n, Nos. 1, 3 & 5 ..... 75%
Buffalo Gravity Locking, Nos. 1, 3 & 5 ..... 75%
Shepard's Double Locking, Nos. 20 & 25 ..... 75%
Champion Gravity Locking, No. 75 ..... 75%
Steamboat Gravity Locking, No. 10 ..... 75%
Pioneer, Nos. 060, 45 & 5½ 75%
Empire, Nos. 101 & 103 ..... 70%
W. H. Co.'s Mortise Gravity Locking, No. 2 ..... 60%
Whipple's Patent Automatic 90%

Gate Hinges—

Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with Latches	*$2.00*	*2.70*	*5.00*
Hinges only	*$1.40*	*2.05*	*3.80*
Latches only	*.70*	*.70*	*.35*

New England:

With Latch	*doz*	*@$2.00*
Without Latch	*doz.*	*@$1.60*

Reversible Self-Closing:

With Latch	*doz.*	*@$1.75*
Without Latch	*doz.*	*@$1.35*

Western:

With Latch	*doz.*	*$1.75*
Without Latch	*doz.*	*$1.15*

Wrightsville H'dware Co.:
Shepard's or Clark's, doz. sets,

No.	1	2	3
Hinges with Latches	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	1.35

Spring Hinges—

Holdback Cast Iron gro. ..... *$9.00@9.50*
Non-Holdback, Cast iron ..... *gro. $8.00@8.50*
J. Bardsley
Bardsley's Non-Checking Mortise Floor Hinges 45%
Bardsley's Patent Checking 15%
Bommer Bros.:
Bommer Ball Bring Floor Hinges 40%
Bommer Spring Hinges 40%
Chicago Spring Butt Co.:
Chicago Spring Hinges 25%
Triple End Spring Hinges 50%
Chicago (Ball Bearing) Floor Hinge 50%
Garden City Engine House 25%
Keene's Saloon Door 25%
Columbian Hdw. Co.:
Acme, Wrt. Steel 30%
Acme, Brass 25%
American 30%
Columbia, No. 14 ..... ℔ gr. $9.00
Columbia, No. 18 ..... ℔ gr. $25.00
Columbia, Adjustable, No. 7 ℔ gr. $12.00
Gem, new list 30%
Clover Leaf ..... ℔ gr. $12.50
Oxford, new list 30%
Lawson Mfg. Co.:
Matchless 30%
Matchless Pivot 45%
Shelby Spring Hinge Co:
Chief Ball Bearing Floor Hinge 50%
Ohio Detachable Screen Door Hinge ℔ gro. $12.00
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr $12.50
Ideal, No. 4 ..... ℔ gr. $9.00
New Idea No. 1 ..... ℔ gr. $9.00
New Idea, Double Acting 33%
Van Wagoner:
Ball Bearing 25%
No. 777 Sh't Steel Holdb'k ..℔ gro. pr. $9

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list Mar. 15, 1901:
Light Strap Hinges ..... 80&5%
Heavy Strap Hinges 80&20&10%
Light T Hinges ..... 75&10&5%
Heavy T Hinges ..... 75&5%
Extra Heavy T Hinges ..... 80&30%
Hinge Hasps 70%
Cor. Heavy Strap ..... 80&20&10%
Cor. Ex. Heavy T ..... 80&20
Extra 5&5@10&10&5%

Screw Hook and Strap.
6 to 12 in ..... *lb. 3½c*
14 to 20 in ..... *lb. 3 c*
22 to 36 in ..... *lb. 2½c*

Screw Hook and Eye:
¾ to 1 inch ..... *lb. 6 c*
⅝ inch ..... *lb. 7 c*
½ inch ..... *lb. 9 c*

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers 35%

Hods, Coal—

	15	*16*	*17*	*18 inch.*
Galv. Open	*$2.50*	*2.75*	*3.00*	*3.25* ℔ doz.
Jap. Open	*$2.00*	*2.25*	*2.50*	*2.75* ℔ doz.
Galv. Fun'el	*$3.00*	*3.25*	*3.50*	*3.75* ℔ doz.
Jap. Funnel	*$2.50*	*2.75*	*3.00*	*3.25* ℔ doz.

Masons, Etc.—

Cleveland Wire Spring Co.:
Steel Mortar ..... each $1.45
Steel Brick ..... each $1.10

Hoes—Eye—

Scovil and Oval Pattern, ... *60¢10@60¢10¢10%*
Grub, list Feb. 23, 1899, ... *70¢10@75%*
D. & H. Scovil 35%

Handled—

Aug. 1, 1899, List:
Field and Garden ..... 70¢10%
Smith's Patent 50%
Meadow & Rhode Island 75%
Black Diamond ..... 70¢10%
Mortar and Street ..... 70¢10¢10%
Planters' ..... 75&12½%
Cotton ..... 70¢10¢10%
Cotton Chopper ..... 75¢12½%
Weeding Hoes ..... 66⅔¢15%
Steel Weeders ..... 66⅔¢15%
Malleable Weeders ..... 66⅔¢15%
Ft. Madison Cotton Hoe ..... 70&10&10%
Ft. Madison Crescent Cultivator Hoe per doz ..... 70&10%
Ft. Madison Mattock Hoes:
Regular Weight ..... ℔ doz. 66⅔%
Junior Size ..... ℔ doz. $4.00
Ft. Madison Sprouting Hoe, ℔ doz. 50%
Ft. Madison Dixie Tobacco Hoe ..... 75&10&7½%
Kretzinger's Cut Easy ..... 70&10%
Warren Hoe 55%
W. & C. Ivanhoe ..... 75&2%
B. B. 6 in., Cultivator Hoe $3.15
B. B., 6½ in $3.35
Acme Weeding ..... ℔ doz. net, $4.35
W. & C. Lightning Shuffle Hoe, ℔ doz. $4.85

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ℔ doz. $24.00 ..... 45&10%

Door—

Empire 50%
Bardsley's 45%

File and Tool—

Nicholson File Holders and File Handles ..... 33⅓@40%

Hooks—

Cast Iron—

Bird Cage, Reading ..... 50&10%
Bird Cage, Sargent's List 60%
Ceiling, Sargent's List ..... 50&10%
Clothes Line, Reading List 50%
Clothes Line, Sargent's List. 50&20&10%
Coat and Hat, Sargent's List. 50@5&10%
Clothes Line, Stowell's 70%
Coat and Hat, Reading 50%
Coat and Hat, Stowell's 70%
Coat and Hat, Wrightsville 65%
Harness, Reading List ..... 50&10%
Harness, Stowell's 60%
School House, Stowell's 70%

Wire—

Belt ..... *80¢10%*
Wire C. & H. Hooks ..... *75@75&10%*
Atlas, Coat and Hat:
Single Cases 70%
10 Case Lots ..... 70&10%
Columbian Hdw Co. Gem ..... 60&10%
Parker Wire Goods Co.: King ..... 70&10%
Van Wagoner, Coat and Hat 70%
Western W. G. Co. Molding 75%

Wire Goods Co:
Acme ..... 60&10%
Chief 70%
Crown ..... 70&10%
Czar 65%
V Brace ..... 70&10%
Czar Harness ..... 50&10%

Wrought Iron—

Box, 6 in., per doz. $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton ..... doz. $1.05@1.25
Wrought Staples, Hooks, &c.—
See *Wrought Goods.*

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $5.50; *Medium,* $6.00; *Heavy,* $6.50
Grass ..... *Nos.* 1 2 3 4
Best $1.50 1.75 2.00
Common $1.30 1.50 1.60
Potato and Manure ..... 60&15%
Wh. Nettree ..... lb. 5¾@6c
Hooks and Eyes:
Brass ..... 60&10&10@70%
Malleable Iron ..... 70&5@70&10%
Covert Mfg. Co, Gate and Scuttle Hooks 35%
Covert Saddlery Worss' Self Locking Gate and Door Hook 60%
Ft. Madison Cut-Easy Corn Hooks, ₩ doz. $3.25 net
Bench Hooks—See *Bench Stops.*
Corn Hooks—*See Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—

See *Shoes, Horse.*

Hose Rubber—

Garden Hose, ¾-inch:
Competition ..... ft. 4½@ 5 c
3-ply Standard ..... ft. 6½@ 7 c
4-ply Standard ..... ft. 7½@ 8 c
3-ply extra ..... ft. 8½@ 9 c
4-ply extra ..... ft. 10 @10½c
Cotton Garden, ¾-in., coupled:
Low Grade ..... ft. 6 @7 c
Fair quality ..... ft. 8 @9 c

Irons—Sad—

From 4 to 10 ..... lb. 3¼@3 c
B B. Sad Irons ..... lb. 3¼@3½c
Chinese Laundry ..... lb. 4¾@5c
Chinese Sad ..... lb. 4@4½c
Mrs. Potts', cents per set:

Nos.	50	55	60	65
Japd Tops	62	59	72	69
Tinned Tops	65	62	75	72

New England Pressing, lb.. 3½@4c

Pinking—

Pinking Irons ..... doz. 50@60c

Soldering—

Soldering Coppers 2¼ and 3.. 19@20c
1¼ and 2 ..... 21@22c

Jacks Wagon—

Covert Mfg. Co.:
Auto Screw ..... 30&5%
Steel ..... 45&2%
Covert's Saddlery Works':
Daisy ..... 60&10%
Victor ..... 60&10%
Lockport 50%
Lane's Steel ..... 30&10%

Kettles—

Brass, Spun, Plain ..... 20@25%
Enameled and Cast Iron—*See Ware, Hollow.*

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c 30%
Smith & Hemenway Co ..... 40&10%
Wilkinson Shear & Cutlery Co 50%
Hay and Straw—*See Hay Knives.*

Corn—

Withington Acme, ₩ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List ..... 70&10@70&10&10%
Bradley's 35%
C. E. Jennings & Co. Nos. 45, 46 .60&10%
Jennings & Griffin, Nos. 51, 52, 60 & 10&10%
Ohio Tool Co.'s 7%
Swan's ..... 70&10&2½%
Watrous ..... 16⅔&10%
L. & L. J. White ..... 20&5@25%

Hay and Straw—

Lightning ..... ₩ doz. $6.50@7.00
Iwan's Sickle Edge ..... ₩ doz. $10.00
Iwan's Serrated ..... ₩ doz. $10.00
Maine ..... ₩ doz. $8.50

Mincing—

Buffalo ..... ₩ gro. $13.00

Miscellaneous—

Farriers' ..... doz. $3.00@3.25
Wostenholm's ..... ₩ doz. $3.00@3.25

Knobs—

Base, 2½-inch, Birch, or Maple, Rubber tip, gro ..... $1.10@1.15
Carriage, Jap, all sizes.. gro. 40@45c
Door, Mineral ..... doz. 65@70c
Door, Por. Jap'd ..... doz. 70@75c
Door, Por. Nickel ..... doz. $2.05@2.15
Bardsley's Wood Door, Shutter, &c .. 15%
Picture, Sargent's ..... 60&10&10%

Lacing Leather—

See *Belting Leather—*

Ladders, Step Etc.—

Lane's Store 25%
Myers Noiseless Store Ladders 50%

Ladles—Melting—

L. & G. Mfg. Co, Low List 25%
P. S. & W 50%
Reading 60%
Sargent's ..... 45&10%

Lanterns—Tubular—

Regular Tubular No. 0. doz. $4.35@4.75
Lift Tubular..No. 0..doz. $4.75@5.25
Hinge Tubular. No. 0..doz. $4.75@5.25
Other Styles ..... 40c@10@10c@5%

Bull's Eye Police—

No. 1, 2¾ inch ..... $2.50@2.75
No. 2, 3 inch ..... $2.75@3.00

Lasts and Stands Shoe—

Stowell's Atlas, Malleable Iron 50%
Stowell's Badger, Cast Iron 50%

Latches—

Thumb—

Roggin's Latches, with screw, doz 35@40c

Leaders Cattle—

Small ..... doz. 55c; *large,* 60c
Covert Mfg. Co. 35%

Lifters, Transom—

R. & E. 33⅓%

Lines—

Wire Clothes, Nos...	18	19	20
100 feet	$2.20	2.00	1.65
75 feet	$1.80	1.70	1.30

Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3 ..... 40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gr. 20%
Masons' Lines, Shade Cord, &c.: White Cotton. No. 3½, $1.50; No. 4 $2.00; No 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50 ..... 30%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50 ..... 30%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft. $5.25..30%
Anniston Waterproof Clothes, 50 ft., ₩ gro.: $36.00; Gilt Edge, $24.00; Air Line $24.0; Acme, $19.00; Alabama, $17 00; Empire, $18.00; Advance, $15.00; Oriole, $22.00; Albermarle, $15.00; Eclipse, $13.50; Chicago, $12.50; Standard, $11.00; Columbia. $9.50.

Locks—Cabinet—

Cabinet Locks ..... 33⅓&@33⅓&@71½%

Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]
Reading Hardware Co 50%
R. & E. Mfg. Co 40%
Sargent & Co ..... 40&10%
Stowell's Steel Door Latches 50%

Elevator—

Stowell's 50%

Padlocks—

Wrought Iron ..... 75&10&5@80&5%
R. & E. Mfg. Co. Wrt. Steel and Brass.. 75@75&10%

Sash, &c.—

Ives' Patent.:
Bronze and Brass 62½%
Crescent 50%
Iron 62½%
Wrought Bronze and Brass 55%
Wrought Steel 55%
Reading ..... net 50%

Machines—Boring—

Com. Upright, Without Augers.. $2.00
Com. Angular, Without Augers .$2.25

	Without Augers.	
R. & E. Mfg. Co.:	Upright.	Angular.
Improved No. 3.	$4.25	No. 1 $5.00
Improved No. 4.	3.75	No. 2. 3.38
Improved No. 5.	2.75	
Jennings'..No. 4,	3.15	No. 1, 3.50
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75

Corking—

Reisinger Invincible Hand Power ..... ₩ doz $48.00

Fence

Williams Fence Machines ..... each, $5.50

Hoisting—

Moore's Anti-Friction Differential Pulley Block 30%
Moore's Hand Hoist, with Lock Brake. 20%

Ice Cutting—

Chandler's ..... 15&10%

Washing—

Boss Washing Machine Co.:	Per doz.
Boss No. 1; Boss Rotary	$57.00
Boss No. 7; Dietz Rotary	$60.00
Champion Rotary; Banner No. 1	$54.00
Standard Champion No. 1	$48.00
Standard Perfection	$36.00
Cinti Square Western	$30.00
Uneeda American, Ro nd	$29.00

Mallets—

Hickory ..... 45&5@50%
Lignumvitæ ..... 45&5@50%
Tinners', Hickory and Applewood, doz ..... 50@55c

Mashers, Vegetable—

Western, W. G. Co., Potato ..... 60&10%

Mats—Door—

Elastic Steel (W.G. Co.) 10%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk*

Mills—Coffee, etc.—

Enterprise Mfg. Co ..... 25@30%
National list Jan. 1, 1904 ..... 30%
Parker's Columbia & Victoria. 50&10@60%
Parker's Box and Side ..... 50&10@60%
Sun, No. 1089, 1 lb mill ..... ₩ doz $3.00
Swift, Lane Bros Co 30%

Mowers, Lawn—

Net prices are generally quoted.
Cheap ..... *all sizes,* $1.75@2 00
Good ..... *all sizes,* $2.25@2.50

	10	12	14	16-inch
High Grade	4.25	4.50	4.75	5.00

Continental ..... 60&5%
Great American 70%
Great American Ball Bearing, new list. 70%
Quaker City 70%
Pennsylvania ..... 60&5%
Pennsylvania, Jr., Ball Bearing 60%
Pennsylvania Golf 50%
Pennsylvania Horse ..... 33⅓&5%
Pennsylvania Pony ..... 40&5%
Philadelphia:
Styles M., S. C., K. T ..... 70&5%
Style A, all Steel ..... 60&5%
Style E, High Wheel ..... 70&10&5%
Drexel and Gold Coin, low list ... 40&5%

Nails—

Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899.. 85&10c@10@90%
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

Nos.	6	7	8	9	10	
A. C	25	23	22	21	21	40&5%
C. B. K	25	23	22	21	21	40%
Anchor	26	21	20	19	18	40&5%
Champ'n	28	26	25	24	23	50%
Coleman	13	12	12	11	11	net
Maud S.	25	23	22	21	21	50%
New Haven	23	21	20	19	18	40&5%
Putnam	23	21	20	19	18	33⅓&5
New P'tn'm	19	18	17	16	16	10&10%
Western, per lb						8½¢

Jobbers' special brands, per lb, 3@8½c

Picture—

	1½	2	2½	3	3½ in.
Brass Head	.45	.60	.70	.95	1.00 gro.
Por. Head	..	1.10	1.10	1.10	.. gro.

Nippers, See *Pliers and Nippers.*

Nuts—

Cold Punched: *Off list.*
Mfrs. or U. S. Standard.
Square, plain $5.10
Hexagon, plain $5.60
Square, C. T. & R $5.30
Hexagon, C. T. & R $6.00
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square Blank $5 80
Hexagon Blank $6.50
Square Tapped $5 80
Hexagon Tapped $6 50

Oakum—

Best or Government ..... lb. 6½c
Navy ..... lb. 5 c
U. S. Navy ..... lb. 6 c
Plumbers' Spun Oakum 2½c
In carload lots ¼c lb. off f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper ..... 60&10%
Tin or Steel ..... 65&10%
Zinc ..... 65&10%
Chase or Paragon:
Brass and Copper ..... 45&10@50%
Tin or Steel ..... 65&10%
Zinc ..... 65&10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₩ doz. 20%
Malleable, Hammers' Old Pattern, same list ..... 50&10%
American Tube & Stamping Co.:
Spring Bottom Cans ..... 70@70&10%
Railroad Oilers etc ..... 60@60&10%

Openers—Can—

French ..... doz. 55c
Iron Handle ..... doz. 25@27c
Sprague, Iron Hdle.. per doz. 35@40c
Sardine Scissors.. doz. $1.75@$3.00
Marvel ..... per doz. $1.25
National 50%
Stowell's Sprague ..... per doz. 35@45c
Tip Top ..... per doz. 50c, 75
Triumph Shear ..... ₩ gro. $9.00

Egg—

Nickel Plate ..... per doz., $2.00
Silver Plate ..... per doz., $4.00

Packing—

Asbestos Packing, Wick and Rope, 11½@15c lb.

Rubber—

Sheet, C. I ..... 8@10c
Sheet, C. O. S ..... 9@15c
Sheet, C. B. S ..... 10@11c
Sheet, Pure Gum ..... 50@65c
Sheet, Red ..... 40@50c
Jenkins' Standard, ₩ lb 80¢ ..25@25&5%

Miscellaneous—

American Packing ..... 7@10c lb.
Cotton Packing ..... 16@25c lb.
Italian Packing ..... 9@12½c lb.
Jute ..... 4@4½c lb.
Russia Packing ..... 8@11c lb.

Pails—Creamery

S. & A. Co., with gauges.. No 1 $6.25; No. 2, $5.50 ₩ doz.

Galvanized—

Price per doz.

Quart	10	12	14
Water, Regular	1.50	1.75	2.00
Water, Heavy	2.75	3.00	3.25
Fire, Rd. Bottom	2.50	2.60	2.80
Well	2.25	2.50	2.75

Pans—Dripping—

Standard List ..... 60c&10c@60&10c&5%

Fry—

Common Lipped:					
No.	1	2	3	4	5
Per doz.	$0.85	1.00	1.10	1.30	1.80

Roasting and Baking—

Regal, S. S. & Co., ₩ doz., Nos. 5, $4.50; 10 $5.25; 20, $5.75; 30, $6.25.
Savory, ₩ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ₩ gro.:

No.	40	50	60	140	150	160
	30.00	35.00	42.00	34.00	39.00	46.00

Paper—Building Paper—

Asbestos: *Per roll*
Building Felt 2¾c
Mill Board, sheet, 40 x 40 inches 3½c
Mill Board, roll, thicker than 1-16 inch 3½c
Mill Board, roll, 1-16 in. thick and less 2½c
Rosin Sized Sheathing: *500 sq. ft.*
Light wt., 25 lbs. to roll ..$0.40@0.45
Medium wt., 30 lbs. to roll .$0.45@0.50
Heavy wt., 40 lbs. to roll ..$0.65@0.70
Black Water Proof Sheathing, 500 Sq ft. 1 ply, 65c; 2 ply, 85c; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 2, 6 and 4½ sq. ft. to lb., ton $41.00
Red Rope Roofing, 250 sq. feet per roll $1.75
NOTE.—*These goods are often sold at delivered prices.*

Tarred Paper.

1 ply (roll 200 sq. ft.), ton.. $32.50@35.00
2 ply, roll 108 sq. ft ..... 55@60c
3 ply, roll 108 sq. ft ..... 78@80c
Slater's Felt (roll 500 sq. ft.) 75c
NOTE.—*Above prices often include delivery, and are for Eastern territory, where prices are controlled by agreement between the manufacturers. In open territory much lower prices are current.*
R. R. M. Stone Surfaced Roofing (roll 110 sq ft.) $2.75

Sand and Emery—

Flint Paper and Cloth.. 50c&10@60%
Garnet Paper and Cloth 25%
Emery Paper and Cloth.. 50c&10@60%

Parers—Apple—

Advance ..... ₩ doz. $4.50
Baldwin ..... ₩ doz. $5.00
Bonanza Improved ..... each $6.50
Daisy ..... ₩ doz. $4.00
Dandy ..... each $7.50
Eureka Improved ..... each $20.00
Family Bay State ..... ₩ doz. $15.00
Improved Bay State ..... ₩ doz. $36.00
Little Star ..... ₩ doz. $5.00
New Lightning ..... ₩ doz. $7.50
Reading 72 ..... ₩ doz. $4.00
Reading 78 ..... ₩ doz. $7.00
Rocking Table ..... ₩ doz. $6.00
Turn Table '98 ..... ₩ doz. $6.75
White Mountain ..... ₩ doz. $6.00

Potato—

Saratoga ..... ₩ doz. $7.00
White Mountain ..... ₩ doz. $6 00

Picks and Mattocks—

List Feb. 23, 1899 ..... 70c&5@70c&10%

Pinking Irons—

See *Irons, Pinking.*

Pins—Escutcheon—

Brass ..... 60@60c&10%
Iron, list Nov. 11, '85 ..... 60@60c&10%

Pipe, Cast Iron Soil—

Standard, 2-6 in ..... 50c&10%
Extra Heavy, 2-6 in 65%
Fittings 70

Pipe, Merchant,

Steel Carload Lots, f.o.b, Pittsburgh.

	Black.	Galvanized.
Merchant Pipe.		
¼, ⅜, ½ inch	68%	58%
¼-inch	71%	61%
¾ to 6 inch	75%	65%
7 to 12 inch	71%	61%

Pipe, Sewer—

Jobbers' Prices—
Standard Pipe and Fittings, 2 to 24 in.
New England 67%
New York and New Jersey 70%
Maryland, Delaware, East Penn. 72%
West Penn and West Va 73%
Virginia 75%
Ohio, Michigan and Ky 75%
Indiana 77%
Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:

	C. L.	L. C. L.
5 in., per 100 joints	$7.50	$8 50
6 in., per 100 joints	8.00	9.00
7 in., per 100 joints	9.00	10.00

Planes and Plane Irons—

Wood Planes—

Bench, First quality ..... 40c&5@40c&10%
Bench, Second qual ..... 50c&5@50c&10%
Molding ..... 33⅓&5@33⅓&10%
Bailey's (Stanley R. & L. Co) ..... 5&10@25&10&10%
Chapin-Stephens Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Toy and German ..... 40@40&10%
Gage Self Setting 35%
Ohio Tool Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Adjustable Wood Bottom 60%
Union 60%

Iron Planes—

Bailey's (Stanley R. & L. Co) ..... 25&10@25&10&10%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 20&10@20&10&10%
Ohio Tool Co.'s Iron Planes 60%
Sargent's ..... 60@60&10%
Union 60%

Plane Irons—

Wood Bench Plane Irons ..... 30c&5@30c&10%
Buck Bros 30%
Chapin-Stephens Co ..... 30@30&10%
Ohio Tool Co 30%
Stanley R. & L. Co.. 20&10@20&10&10%
L. & L. J. White ..... 20&5@25%

Planters, Corn, Hand.

Kohler's Eclipse ..... ₩ doz. $8.50

Plates—

Felloe ..... lb. 3¼@4c
Self-Sealing Pie Plates (S. S. & Co.), ₩ doz. $2.00 ..... 50%

Pliers and Nippers—

Button Pliers ..... 75@75&10%
Gas Burner, per doz., 5 in., $1.25@ $1.50; 6 in., $1.45@$1.50
Gas Pipe.. 7 8 10 12-in.
$2.00 $2.25 $3.00 $3.75
Acme Nippers ..... 50@50&5%
Bernard's:
Cutting Nippers 33⅓%
Parallel, Pliers 33⅓%
Paragon Pliers 50%
Lodi Pliers 50%
Elm City Fence Pliers 33⅓%
Cronk & Carrier Mfg. Co.:
American Button ..... 75&10%
Cronk's 60%
Improved Button ..... 70&10%
Stub's Pattern 50%
Combination and others 33⅓%
Haller's Farriers' Nippers, Pincers, and Tools 40&10@40&10&10%
P., S. & W. Tinners' Cutting Nippers ..... 30@30&10%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—

Chapin Stephens Co.:
Plumbs and Levels ..... 30@30&10&10%
Chapin's Imp. Brass Cor ..... 40@40&10&10%
Pocket Levels ..... 30@30&10&10%
Level Glasses ..... 60@60&10&10%
Disston's Plumbs and Levels 70%
Disston's Pocket Levels 70
C. E. Jennings & Co.'s Iron ..... 25&10%
C. E. Jennings & Co.'s Iron, Adjustable ..... 33⅓&10%
Stanley R. & L. Co ..30&10@30&10&10%

Stanley's Duplex.....20@20&10&10%
Woods' Extension.....33⅓&5

Poachers, Egg—

Buffalo Steam Egg Poachers, ₱ doz., No. 1, $3.00; No. 2, $3.00; No. 3, $4.00; No. 4, $12.00.....50&
Points, Glaziers'—
Bulk and 1 lb. papers.....lb. 8¼c
½-lb. papers.....lb. 9¼c
¼-lb. papers.....lb. 9½c

Pokes, Animal—

Ft. Madison Hawkeye.....₱ doz. $3.25
Ft. Madison Western.....₱ doz. $4.00

Police Goods—

Manufacturers' Lists.....25@25&5%
Tower's.....35%

Polish—Metal—

Prestoline Liquid, No. 1 (½ pt.), ₱ doz. $3.00; No. 2 (1 qt.), $9.72.....40%
Prestoline Paste.....40&10%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gr. $4.50; ½ ℔ boxes, ₱ doz. $1.35; 1 ℔ boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz. $1.25; ₱ gr. $13.00.
Barkeepers' Friend Metal Polish, ₱ doz. $1.75; ₱ gr. $18.00.
Wynn's White Silk, ½ pt. cans, ₱ doz.....$2.00

Stove—

Black Eagle Benzine Paste, 5 ℔ cans.. ₱ ℔ 10¢
Black Eagle, Liquid, ½ pt. cans ₱ doz. 75¢
Black Jack Paste, ¼ ℔ cans, ₱ gro. $9.00
Black Kid Paste, 5 ℔ can.....each, $0.65
Ladd's Black Beauty, gr. $10.00.....50%
Joseph Dixon's, ₱ gr. $5.75.....10%
Dixon's Plumbago.....₱ ℔ 8¢
Fireside.....₱ gr. $2.50
Gem, ₱ gr. $4.50.....10%
Japanese.....₱ gr. $3.50
Jet Black.....₱ gr. $3.50
Peerless Iron Enamel, 10 oz. cans..... ₱ doz. $1.50
Wynn's:
Black Silk, 5 ℔ pail.....each 70¢
Black Silk, ½ ℔ box.....₱ doz. $1.00
Black Silk, 5 oz. box.....₱ doz. $0.75
Black Silk, ½ pt. liq.....₱ doz. $1.00

Poppers, Corn—

1 qt., Square.....gro. $9.00
1 qt., Round.....gro. $10.00
1½ qt. Square.....gro. 11.00
2 qt., Square.....gro. 13.00

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts, each.....$1.20

Potato Parers—

See *Parers, Potato.*

Pots—Glue—

Enameled.....40%
Tinned.....35%

Powder—

In Canisters:
Duck, 1 lb. each.....15c
Fine Sporting, 1 lb. each.....75c
Rifle, ¼-lb. each.....15c
Rifle, 1-lb. each.....25c
King's Semi-Smokeless:
Keg (25 ℔ bulk).....$8.50
Half Keg (12½ ℔ bulk).....$3.50
Quarter Keg (6¼ ℔ bulk).....$1.90
Case 24 (1 ℔ cans bulk).....$8.50
Half case (1 ℔ cans bulk).....$4.50

King's Smokeless:	Shot Gun	Rifle
Keg (25 ℔ bulk)	$12 00	$15.00
Half Keg (12½ ℔ bulk)	6.25	7.75
Quarter Keg (6¼ ℔ bulk)	3.25	4.00
Case 24 (1 ℔ cans bulk)	14.00	17 00
Half case 12 (1 ℔ cans blk)	7.25	8 75

Robin Hood Smokeless Shot Gun..50&20%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co.....30@25%
Sensible.....33⅓&5
2 qt., $2.00; 4 qt., $4.00; 10 qt., $6.00 each.

Seal Presses—

Morrill's No. 1, per doz. $20.00.....50%

Pruning Hooks and Shears—See *Shears.*

Pullers Nail—

Cyclops.....50%
Dudly Improved Nail Puller.....50%
Miller's Falls, No. 3, per doz. $12.00.....33⅓&10%
Pearson No. 1, Cyclone Spike Puller, each $30 00.....50%
Pelican, ₱ doz. $9.00.....40&10%
Scranton, Case Lots:
No. 4 B (large).....$5.50
No. 3 B (small).....$3.00
Smith & Hemenway Co.:
Ajax.....60%
Diamond B, No. 2, case lots, ₱ doz $6.00
Diamond B, No. 3, case lots, ₱ doz $5.50
Eureka.....50%
Giant, No. 1, ₱ doz. $18; No. 2, $16.50; No. 3, $15.....40%
Yankee.....60%&5

Pulleys—Single Wheel—

Inch	2	2½	3
Awning...doz	$0.55	.85	1.15

Hay Fork, Swivel or Solid Eye.....doz., 4 in., $1.15; 5 in., $1.40

Inch	2	2¼	2½
Hot House.doz	$0.70	.90	1.25
Inch	1¼	1½	1¾ 2
Screw.....doz	$0.16	.19	.23 .30
Inch	1¼	2	2¼ 2½
Side.....doz	$0 20	.40	.55 .65
Inch	1¼	1¾	2 2½
Tackle....doz	$0.30	.42	.53 1.00

Stowell's:
Ceiling or End, Anti-Friction..60&10%
Dumb Waiter, Anti-Friction...60&10%
Electric Light.....60%
Side, Anti-Friction.....60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz., 1¾ and 2 in..16@19c
Auger Mortise, no Face Plate, per doz. 1¾ and 2 in.....16@19c
Auger Mortise, with Face Plate, per doz., 1¾ and 2 in.....16@19c
Acme.....1¼ in., 16¢; 2 in., 19¢
Common Sense, 1¾ in.... ₱ doz., 18¢; 2 in., 20¢.
Fox-All-Steel, Nos. 3 and 7, 2 in. ₱ doz 50%
Grand Rapids All Steel Noiseless....50%
Ideal.....70&5%
Niagara.....1¼ in., 16¢; 2 in., 19¢
No. 20, Troy....1¾ in., 14½¢; 2 in., 16½¢
Star.....1¼ in., 16¢; 2 in., 19¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern.....60@60&10%
Pitcher Spout.....80@80&10%
Wood Pumps, Tubing, Etc....45@50%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch..	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch..	3	3½	3½	3¾ 4
	$3.50	3.60	3.85	4.10 4.50

Plunger Cup Leathers—Per 100:

Inch	2½	3	3½	4
	$2.75	3 85	5.00	6.00

Barnes Dbl. Acting (low list).... 50&10%
Contractors' Rubber Diaphragm No. 2 B. & L. Block Co.....$16.00
Daisy Spray Pump.....₱ doz. $7.20
Flint & Walling's Fast Mail (low list).55%
Flint & Walling's Pitcher Spout.....30%
National Specialty Mfg. Co., Measuring, $6.00.....30%
Mechanical Sprayer.....$7.20
Myer's Pumps, low list.....50%
Myers' Power Pumps.....50%
Myers' Spray Pumps.....50%

Punches—

Saddlers' or Drive, good..doz. 50@75c
Spring, single tube, good quality... $1.75@3.00
Revolving (4 tubes)...doz. $3.50@3.75
Bemis & Call Co.'s Cast Steel Drive....50%
Bemis & Call Co.'s Check.....55%
Benard Spring Belt Punches.....33⅓%
Lodi Spring Belt Punches.....50%
Morrill's No. 1 (A. B. C.) ₱ doz., $15.00 ..50%
No. 2, ₱ doz. $22.50.....50%
Hercules, each $7.50.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Paragon Spring Belt Punches.....50%
Steel Screw, B & K. Mfg Co.....40%
Tinners' Hollow, P., S. & W. Co.35@35&5%
Tinners' Solid, P., S. & W. Co., ₱ doz., $1.44.....60%

Rail—Barn Door, &c.—

Cast Iron, Barn Door: Flange Screw Holes for Rd. Groove Wheels:

½	⅝	¾ in.
$1.70	$2.10	$3 00 100 feet.

Angular for Sq. Groove Wheels:

Small.	Med.	Large.
$1.50	1 90	2.60 100 feet.

Sliding Door, Iron Painted..2½@3¼c
Sliding Door, Wrought Brass, 1¼ in.....lb. 36c...30%
Allith Mfg. Co., No. 1, Reliable Hanger Track, ₱ foot.....8¢
Allith Mfg. Co., No. 2, Reliable Hanger Track, ₱ foot.....10¢
Cronk's Double Braced Steel Rail, ₱ foot.....3½¢
Cronk's O. N. T. Rail.....3¼¢
Lane's Hinged Track, ₱ 100 ft., 1 in., $3.70; 1¼ in., $4.40
Lanes' O. N. T., ₱ 100 ft., 1 inch, $3.00; 1¼ inch, $3.70; 1½ inch, $4.00.
Lanes' Standard, 1¼ in., ₱ 100 ft 4.00
Lawrence Bros., ₱ ft. 11¢.....60%
Lawrence Bros. New York.....3½¢
McKinney's Hinged Hanger Rail ₱ foot, 11¢.....50%
McKinney's None Better.....₱ ft. 3½¢
McKinney's Standard.....₱ ft. 4 c
Myers' Stayon Track.....30&10%
Safety Door Hanger Co.'s Storm King Safety.....60%
Safety Door Hanger Co.'s U.S. Standard.....60%
Smith's Wrought Bracket, Plain.....3½¢
Smith's Special.....4½¢
Smith's Never Jump, per ft. 11¢.....50%
Smith's Plain Steel.....30%
Smith's Milled Steel.....4½¢
Stowell's Cast Rail.....₱ ft. 12½¢
Stowell's Steel Rail, Plain.....25%
Stowell's Wrought Bracket, 1 3-16 in.... ₱ ft. 3¢
Stowell's Wrought Bracket. 1¼x5-16.... ₱ ft. 7¢
Swett's Hylo, per ft. 11¢.....50&10%
Swett's P. L. B. Steel Rail, ₱ 100 ft. $3.00

Rakes—

Net Prices, Malleable Rakes:

	10	12	14	16-tooth
Shank	$1.50	1.60	1.75	1.85
Socket	$1.65	1.80	1.95	2.10

Steel, Garden and Gravel, Aug. 1, '99 List.....70%
Weldless Steel.....75&5%
Malleable Iron, Garden.....70&10%
Lawn Rakes, Metal Head, per doz., 20 teeth.....$3.25@3.50
24 teeth.....$3.50@3.75
Fort Madison Red Head Lawn.....$3 25
Fort Madison Blue Head Lawn.....$3.70
Jackson Lawn, 29 and 30 teeth, ₱ doz., net. $4.25
Kohler's:
Lawn Queen, 20-tooth, ₱ doz.....$3.45
Lawn Queen, 24-tooth, ₱ doz $3.60
Paragon, 20 tooth, ₱ doz.....$2.75
Paragon, 24-tooth, ₱ doz.....$3.00
Steel Garden, 14-tooth, ₱ doz.....$2.98
Malleable Garden, 14-tooth, ₱ doz. $2.00

Rasps, Horse—

Disston's.....75%
Heller Bros.....70&5&70&10&5%
McCaffrey's American Standard..... 50&10&5%
New Nicholson.....70&10@70%
See also *Files.*

Razors—

Borasic.....60 & 10%
Fox Razors, No. 42, .. ₱ doz. $20.00 } dis. 40%
Fox Razors, No. 44, .. ₱ doz, $20.00 }
Fox Razors, No. 52, Platina, ₱ doz. $35.00

Red Devil.....60%
Silberstein:
Carbo Magnetic.....$18.00
Griffon, No. 65.....$15.00
Griffon, No. 00.....$12.00
All other Razors.....40%

Safety Razors—

Safety Razors.....40%
New Gem, in Tin Boxes.....₱ doz., $12.00
New Gem, Extra Blades.....₱ doz. $8.25
Gem Outfits (Razor, Strop, etc.)..... ₱ doz. $25.00
Complete Razor, extra Blade in Leather Case.....₱ doz. $47.00
Silberscein.....40%

Reels—Fishing—

Bishop's Independent Fish Reel Spooler, ₱ doz.....$30.00
Hendryx:
M 6, Q 6, A 6, B 6, M 9½, M 18, Q 16, A 10, B 10, 4008, Rubber Populo, Nickeled Populo.....20%
Aluminum, German Silver, Bronze..25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
4 N, 6 PN, 24 N, 26 PN.....20%
2904 P.....33⅓%
2904 PN.....33⅓%
0924 N.....33⅓%
02084 N.....33⅓%
002904 PN.....33⅓%
802 N.....33⅓%
986 PN, 2904 N, 974 PN.....25%
5009 PN, 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR.....25%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*

Black Jap
White Jap
Bronzed
Nickel Plated
Electro Plated
} *75@75&10*

Registers, Cash—

Sun, No. 10, Metal Cabinet.....$30.00
Sun, No. 10, Wood Cabinet.....$25.00

Revolvers—

Single Action.....85@90c
Double Act'n, except 44 cal.....$1.90
Double Action, 44 caliber.....$2.05
Automatic.....$3.60
Hammerless.....$4.10
Note.—Jobbers frequently cut the above prices of manufacturers for small trade.

Riddles, Hardware Grade

16 in., per doz.....$2.25@$2.50
17 in., per doz.....$2.50@$2.75
18 in., per doz.....$2.75@$3.00

Rings and Ringers—

Bull Rings—

	2	2½	3 Inch
Steel	$0.70	0.75	0.80 doz.
Copper	1.00	1.15	1.40 doz.

Rea's Improved Self-Piercing:
2 in., ₱ doz., $1.50; 2½ in., $1.75; 3 in., $2

Hog Rings and Ringers—

Hill's Rings....gro. boxes, $4.25@4.50
Hill's Ringers, Gray Iron, doz. 50@55c
Hill's Ringers, Mal. Iron, doz. 70@75c
Blair's Rings.....per gro. $5.00@5.25
Blair's Ringers...per doz. $0.60@ .65
Brown's Rings....per gro. $5.25@5.50
Brown's Ringers..per doz. $0.65@ .70

Rivets and Burrs—

Copper.....60c&c@60c&10%
Iron or Steel.....75c&5@75c&10%

Rollers—

Acme, Stowell's Anti-Friction.....50%
Barn Door, Sargent's list.....60%
Cronk's Stay.....60&5%
Cronk's Brinkerhoff.....60%&5
Lane's Stay.....33⅓&5%
Stowell's Barn Door Stay.....₱ doz. $1 00

Rope—

Manila, 7-16 in. diam. and larger, tarred or untarred.....lb. 11 @11½c
Manila, Hay, Hide and Bale Ropes, Medium and Coarse.....lb. 11 @11½c
Sisal, 7-16 in. diam. and larger:
Mixed.....lb. 7½@ 7¾c
Pure.....lb. .. @ 9 c
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Mixed.....lb. 7½@ 7¾c
Pure.....lb. .. @ 9 c
Sisal, Tarred, Medium Lath Yarn:
Mixed.....lb. 7 @ 7¼c
Pure.....lb. .. @ 8 c
Cotton Rope: —Lb.—
Best.....¼-in. and larger.. 18@25c
Medium..¼ in. and larger.. 16@18c
Com .....¼-in. and larger..12@13c
Jute Rope:
Thread No. 1, ¼-in. and up, lb. 6 c
Thread No. 2, ¼-in. and up, lb. 5½c
Old Colony Manila Transmission Rope, ₱ ℔ 17¼¢

Wire Rope—

Galvanized.....47½&5%
Plain.....55&5%

Ropes, Hammocks—

Covert Mfg. Co.:
Jute.....40&5&5%
Sisal.....30%
Covert Saddlery Works.....60&5%

Rules—

Boxwood.....60&10c&10%
Ivory.....35c&10@35c&10c&5%
Chapin-Stephens Co.:
Boxwood.....60@60&10%
Ivory.....35@35&10&10%
Miscellaneous.....50@50&10&10%
Combination.....55@55&10%
Stationers'.....10@10&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....60&10%
Stanley R. & L. Co.:
Boxwood.....60@60&10%
Ivory.....35@35&10&10%
Upson Nut Co.:
Boxwood.....60@60&10%
Ivory.....35&10@35&10&10%

Sash Locks—See *Locks, Sash*

Sash Weights—See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage.*

Saw Frames—See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins:
Circular.....50%
Band.....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50%
One-Man Saw.....40%
Wood Saws.....40%
Hand, Compass, &c.....40%
Chapin-Stephens Co.:
Turning Saws and Frames....30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....30&10&5%
Disston's:
Circular, Solid and Inserted Tooth..50%
Band, 3 to 14 in. wide.....60%
Band, ¼ to 2¾.....70%
Crosscuts.....45%
Narrow Crosscuts.....50%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35%
Woodsaw Blades.....37½%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8.....25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Keyhole, &c.....25%
Butcher Saws and Blades.....35%
C. E. Jennings & Co.'s.:
Back Saws.....25&10%
Butcher Saws.....30&10%
Compass and Key Hole Saws.35&5&10%
Framed Wood Saws.....30&10%
Hand Saws.....30&2½&10%
Wood Saw Blades.....30&10%
Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....15&10%
Peace & Richardson's Hand Saws.....30%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws..50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Hand Saws, Bay State Brand.....45%
Compass, Keyhole, &c .....25@25&7½%
Wood Saws.....35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws.....40&10@50%
Butcher Saws Blades.....35@40%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws.....50%

Hack Saws—

Atkins' Hack Saw Blades A A A.... 25%
Disston:
Concave Blades.....25%
Keystone.....40%
Hack Saw Frames.....30%
Fitchburg File Works, The Best.....25%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180..... 35&5&10%
Hack Saws, Nos. 175, 180, complete. 35&5&10%
Goodell's Hack Saw Blades.....40%
Griffin's Hack Saw Frames .. 35&5&10%
Griffin's Hack Saw Blades.....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades.....35%
Diamond Hack Saw Frames.....50%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades.....35%
Sterling Hack Saw Frames..... 30& 0&5%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $30.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scalers, Fish—

Bishop's Lightning.....₱ doz. $2.00
Covert's Saddlery Works.....60&10%

Scales—

Family, Turnbull's.....50@50c&10%
Counter:
Hatch, Platform, ½ oz to 4 lbs. doz. $5.50
Two Platforms, ½ oz to 8 lbs. doz. $16
Union Platform, Plain..$1.70@1.90
Union Platform, Striped $1.85@2.15
Chatillon's:
Eureka.....25%
Favorite.....40%
Grocers' Trip Scales.....50%
Chicago Scale Co.:
The "Little Detective," 25 lbs.....50%
Union or Family No. 2.....60%
Portable Platform (reduced list).....50%
Wagon or Stock (reduced list)....25@35%
Pelouze Scales—Household, Counter, Candy, Ice, Postal, Computing.....50%
"The Standard" Portables.....50%
"The Standard" R. R. and Wagon.....50%

Scrapers—

Box, 1 Handle.....doz. $2.00@2.25
Box, 2 Handle.....doz. $2.60@2.85
Ship Light, $2.00; Heavy, $4.50
Adjustable Box Scraper (S. R. & L. Co) $6.00.....30@30&10%
Chapin-Stephens Co., Box.....50@50&10%

Screens, Window, and Frames—

Flyer Pattern Screens...60&5@60&5&2½%
Maine Screen Frames.....40&10&5%
Perfection Screens.....60&5@60&5&2½%
Phillips' Screen Frames..60&5@60&5&2½%
Porter's:
Fairview Screens.....60&5@60&5&2½%
Hummer Screens.....60&5@60&5&2½%
Klondike Screens.....60&5@60&5&2½%
See also *Doors.*

Screws—Bench and Hand—

Bench, Iron..doz. 1 in.. $2.50@2.75 ; 1¼, $3 00@3. 25: 1¼, $3.50@3.75
Bench, Wood, Beech....doz. 30@30&5
Hand, Wood.....30@30&5%
R. Bliss Mfg. Co., Hand.....30%
Chapin-Stephens Co., Hand.....30@30&10%
Ohio Tool Co., Bench and Hand.....30%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1. 99.....80&5%
Coach and Lag, Gimlet Point, list Oct. 1, '99.....80%
Hand Rail, list Jan. 1, '81..70@10@15%

Jack Screws—

Standard List.....75@10@30&5%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50@50&5%
Sargent.....70%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.50@50@10%
Flat or Round Head, Brass50@50@10%

Set and Cap—

Set (Iron or Steel).....75% } *Extra*
Sq. Hd. Cap.....70% } *10&5*
Hex. Hd. Cap.....70% } *on*
Rd. or Fillister Hd. Cap 65% } *given.*

Wood—

List July 23, 1903.
Manufacturers' printed discounts :
Flat Head, Iron.....87½@10@....%
Round Head, Iron.....85@10@....%
Flat Head, Brass.....85@10@....%
Round Head, Brass.....80@10@....%
Flat Head, Bronze....77½@10@....%
Round Head, Bronze.....75@10@....%
Drive Screws.....87½@10%

Scroll Saws—See *Saws, Scroll.*

Scythes—

Per doz.
Clipper Pattern, Grass...$4.25@$5.00
Full Polished Clipper.....$4.75@$5.50
Grain.....$7.00@$7.50
Clipper, Grain.....$7.75@$8.25
Weed and Bush.....$4.50@$5.00

Seeders— Raisin—

Enterprise.....25@30%

Sets— Awl and Tool—

Brad Awl and Tool Sets :
Wood Hdle..10 Awls doz. $2.00@2.25
Wood Hdle., 14 Awls, 6 Tools ... doz. $2.50@2.60
Aiken's Sets, Awl and Tools : No. 30, ₩ doz. $10.00.....50&10&10%
Fray's Adj. Tool H'dls....Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
C. E. Jennings & Co.'s Model Tool Holders.....3%&10%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18 .... 15&10%
Stanley's Excelsior : No. 1, $7.50 ; No. 2 $4.00; No. 3, $5.50.....30@30&10&10%

Garden Tool Sets—

Ft. Madison, Three Pieces, Hoe, Rake and Shovel.....₩ doz. sets.....$9.00

Nail—

Square.....per gro. $2.25@2.50
Round, Blk. and Pol., assorted..... gro. $1.80@2.00
Octagon.....gro. $3.50@3.75
Buck Brothers.....37½%
Cannon's Diamond Point, ₩ gr. $12..35%
Mayhew's.....per gro. $9.00
Snell's Corrugated, Cup Pt. per gro. $7.50
Snell's Knurled, Cup Pt....per gro $7.50
Springfield Mach. Screw Co.: Diamond Knurled, Cup Pt., per gro. $7.50

Rivet—

Regular list.....75@75@10%

Saw—

Aiken's: Genuine.....50&10%
Imitation.....50&10%
Atkin's.:
Criterion.....40%
Adjustable.....40%
Bemis & Call Co's.:
Cross Cut.....30%
Hammer, new Pat.....45%
Plate.....20%
Spring Hammer.....30%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.63.....50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 95, $15.63.....50%
No. 1 Old Style, $10.00.....50%
Special, $16.25.....50%
Giant Royal, Cross Cut .....₩ doz. $8.50
Royal, Hand, ...₩ doz. $5.00
Taintor Positive. .....₩ doz $6.75

Shaving—

Fox Shaving Sets, No. 30, per doz, $24.00net

Sharpeners, Knife—

Chicago Wheel & Mfg. Co.....63%

Shaves Spoke—

Iron.....doz. $1.00@1.15
Wood.....doz. $1.75@2.00
Bailey's (Stanley R. & L. Co.) .....30@30&10&10%
Chapin-Stephens Co .....30@30&10&10%
Goodell's, ₩ doz. $9.00.....15&10%
Wood's F1 and F2.....30%

Shears—

Cast Iron...	*7*	*8*	*9 in.*
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13.00*	*15.00*	*17.00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality, Jap.....70@70&10%
" Nickel.....60@60&10%
Fair qual. Jap.....80@80&5%
" Nickel.....75@75&10%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailors' Shears.....10%
Wilkinson's Hedge .....1900 list 45%
Wilkinson's Branch, Lawn and Border.....40%
Wilkinson's Sheep .....1900 list, 50%

Tinners' Snips—

Steel Blades .....20@5@20@10
Steel Laid Blades .....40@10@20%
Forged Handles, Steel Blades, Berlin .....40@40&10%
Heinisch's Snips 40%
Jennings & Griffin Mfg. Co.'s, 6¼ to 10 inch .....40&7½&10%
Niagara Snips 40%
P., S & W. Co. 20%
Triumph Pipe Shear.....₩ doz. 9.00

Pruning Shears and Tools—

Cronk's Grape Shears.....33⅓%
Cronk's Pruning Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ₩ doz. $18.00 .....25%
Disston's Pruning Hook, ₩ doz. $12.00 .....25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades.....40@40&5%
Orange Shears.....50&10@50&20%
Grape .....40&10@50%
Tree Pruners.....75%
P., S. & W. Co.....33⅓%

Sheaves—Sliding Door—

Stowell's Anti-Friction 50%
Patent Roller Hatfield's, Sargent's list, 70&10%
Reading.....50%
R. & E. list.....33⅓%
Wrightsville Hatfield Pattern.....80%

Sliding Shutter—

Reading list.....50%
R. & E. list.....33⅓%
Sargent's list.....50&10%

Shells— Shells, Empty—

Brass Shells, Empty :
First quality, all gauges.....60&5%
Climax, Club, Rival, 10 and 12 gauge.. 65&5%
Paper Shells, Empty :
Acme, Ideal, Leader, New Rapid, Magic 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge.....20%
Climax, Union, League, New Rival 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge ($7.50 list)..20%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge.....33⅓&5%
Robin Hood, Low Brass.....30&10%
Robin Hood, High Brass.....30&10%

Shells, Loaded—

Loaded with Black Powder 40%
Loaded with Smokeless Powder, medium grade.....40&5%
Loaded with Smokeless Powder, high grade.....40&10&10%
Robin Hood Smokeless Powder:
Robin Hood, Low Brass. 50%
Comets, High Brass.....50&10&5%

Shoes, Horse, Mule, &c.—

F. o. b., Pittsburg:
Iron.....per keg $4.00
Steel.....per keg 3.75
Burden's, all sizes, ₩ keg..... ..$3.90

Shot—

Drop, up to B, 25-lb. bag.....$1.60
Drop, B and larger, per 25-lb. bag $1.85
Buck, 25-lb. bag.....$1.85
Chilled, 25-lb. bag.....$1.85

Shovels and Spades—

Association List, Nov. 15, 1902....40%

Sieves and Sifters—

Hunter's Imitation, gro. $10.50@11.00
Buffalo Metallic issued, S. S. Co., ₩ gr.:

14&16	16&18	18&20
$13.20	$13.50	$14.40

National Mfg. Co. :
Victor.....per gro. $12.00
Surprise.....per gro. $11.00
No Name.....per gro. $11 00
Shaker Barber's Pat.) Flour Sifters. ₩ doz., $2.00.....20%

Sieves, Tin Rim—

Per dozen.

Mesh.....	*14*	*16*	*18*	*20*
Black, full size...	*$1.20*	*1.25*	*.30*	*1.35*
Plated, full size .	*$1.30*	*1.35*	*1.40*	*1.45*
Black, scant....	*....*	*$6.95*	*1.00*	*1.05*

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested, doz.....$0.90@0.95
Mesh 20, Nested, doz..... 1.00@1.05
Mesh 24, Nested, doz ..... 1.30@1.40

Sinks—

Cast Iron—

Standard list.....60@60@10%
NOTE.—*There is not entire uniformity lists used by jobbers.*

Skeins, Wagon—

Cast Iron.....75@75@10%
Steel.....40@40@10%

Slates, School—

Factory Shipments.
"D" Slates.....40@10%
Noiseless Slates.....60@5 tens

Slaw Cutters—See *Cutters.*

Slicers, Vegetable—

Sterling No. 10, $2.00.....33⅓

Snaps, Harness—

German.....40@40@10%
Covert Mfg. Co.:
Derby.....30&5&2%
High Grade.....45%
Jockey.....30&10%
Trojan.....45%
Yankee.....30&5&2%
Yankee, Roller.....30&5&2%
Covert's Saddlery Works:
Crown.....60%
German.....60%
Model.....60%
Triumph.....60%
Oneida Community Solid Swivel.....60%
Sargent's Patent Guarded .....60%&10%

Snaths—

Scythe.....45%

Snips, Tinners'—See *Shears.*

Spoons and Forks—

Silver Plated—

Good Quality..... 50@10@60@5%
Cheap..... ..60@60@10%
International Silver Co.
1847 Rogers Bros. and Rogers & Hamilton.....40&10%
Rogers & Bro., William Rogers Eagle Brand.....50&10%
Anchor, Rogers Brand.. .....60%
Wm. Rogers & Son.....60&10%

Miscellaneous—

German Silver.....60@60@5%
Cattaraugus Cutlery Co.:
Yukon Silver.....50%

Tinned Iron—

Teas.....per gro. 45@50c
Tables..... per gro. 90c@$1.00

Springs— Door—

Chicago (Coil)... .....40&10%
Gem (Coil).....20%
Reliance (Coil)..... .....40&10%
Star (Coil) 30%
Torrey's Rod, 39 in.....₩ dos. $1.10
Victor (Coil).....50&10&10%

Carriage, Wagon, &c.

1¼ in. and Wider : Per. Lb.
Black.....4½c
Half Bright.....4½c
Bright 4½c
Painted Seat Springs :
1½ x 22 x 26, per pr.....42c
1½ x 3 x 28 per pr.....70c

Sprinklers, Lawn—

Enterprise.....25@20%
Philadelphia No. 1, ₩ doz. $12; No. 2, $15; No. 3, $24.....30%

Squares—

Nickel plated.... } Last Jan. 5, 1900.
Steel and Iron... } 70@10@75&10%
Rosewood tdl Try Square and T-Bevels .....60&10@10@70%
Iron Hdl. Try Squares and T-Bevels. .....40&10@40&10@10%
Disston's Try Sq. and T-Bevels.....70%
Winterbottom's Try and Miter..... 40&10@40&10&10%

Squeezers— Lemon—

Wood, Common, gro., No. 0, $5.25 @$5.50 ; No. 1, $6.25@$6.50.
Wood, Porcelain Lined.
Cheap .....doz. $1.00
Good Grade.....doz. $1.25
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined.....doz. $1.75

Staples—

Barbed Blind. .....lb. 6@6½c
Electricians', Association list..... 80@10&10&10%
Fence Staples, Plain $2.25; Galvanized.....$2.55
Poultry Netting, Staples....per lb.. .....3½@3½c
Grand Crossing Tack Co.'s list....80&10%

Steels, Butchers'—

Dick's.....30%
Foster Bros'.....30%
C. & A. Hoffmann's.....40%

Steelyards..... .....30@30@10%

Stocks and Dies—

Blacksmiths'.....50@50@10%
Curtis Reversible Ratchet Die Stock.25%
Derby Screw Plates.....25%
Gardner Die Stocks No. 1.....50%
Gardner Die Stocks, larger sizes.....40%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25@30%

Stone—

Scythe Stones—

Chicago [illegible] & Mfg. Co:
Gem Corundum, 10 inch, $8.00 per gro., 8 inch, $10.80
Norton Emery Scythe Stones:
Less than gross lots.....₩ gro. $9.00
One gross or more.....₩ gro. $7.20
Lots of 10 gross or more.....₩ gro $6.00
Pike Mfg. Co., 1901 list: ₩ lb.
Black Diamond S[illegible].....₩ gro. $12.00
Lamoille S. S .....₩ gro. $11.00
White Mountain S. S....₩ gro. $9.00
Green Mountain S. S....₩ gro. $6.00
Extra Indian Pond S. S.₩ gro. $7.50
No. 1 Indian Pond S. S..₩ gro. $7.00
No. 2 Indian Pond S. S..₩ gro. $4.50
Leader Red End S. S....₩ gro $4.50
Balance of 1901 list 33⅓%

Oil Stones, &c.

Chicago Wheel & Mfg. Co., 1901 list:
Gem Corundum Oil, Double Grit.....50%
Gem Corundum Axe, Single or Double Grit.....55%
Gem Corundum Slips.....55%
Gem Corundum Razor Hones.....50%
Pike Mfg. Co. 1901 list: ₩ lb.
Arkansas Stone, No. 1, 3 to 5¼ in. $2.80
Arkansas Stone, No. 1, 5¼ to 8 in. $3.50
Arkansas Slips No. 1.....$4.00
Lily White Washita 4 to 8 i....60¢
Rosy Red Washita, 4 to 8 in....60¢
Washita Stone, Extra, 4 to 8 in..50¢
Washita Stone, No. 1, 4 to 8 in..40¢
Washita Stone, No. 2, 4 to 8 in..30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
India Oil Stones (entire list) 33⅓%
Hindostan No. 1, Regular....₩ D 8¢
Hindostan No. 1 Small.....₩ D 10¢
Axe Stones (all kinds) .....
Turkey Oil Stones, ex. 5 tos in. ₩ D 30¢
Queer Creek Stones, 4 to 8 in.....20¢
Queer Creek Slips.....40¢
Sand Stone.....5¢
Belgian, German and Swaty Razor Hones.....50%
Natural Grit Carving Knife Hones, ₩ doz.....$3.00
Quick Edge Pocket Knife Hones, ₩ doz.....$3.00
Mounted Kitchen Sand Stone, ₩ doz.....$1.50

Stoners— Cherry—

Enterprise.....25@30%

Stops, Bench—

Millers Falls.....15&10%
Morrill's...₩ doz., No. 1, $10.00.....50%
Morrill's, No. 2, $12.50..... .....50%
Whipple's Combination..... ₩ doz. $2 50

Door—

Chapin-Stephens Co.....60@60&10%

Plane—

Chapin-Stephens Co.....2%

Straps— Box—

Cary's Universal, case lots....20&10&10%

Hame—

Covert's Saddlery Works.....60&10%

Stretchers, Carpet—

Cast Iron, Steel Points....doz. 55@60c
Socket.....doz. $1.75
Excelsior Stretcher and Tack Hammer Combined, per doz. $6..... .....20%

Stuffers, Sausage—

Enterprise Mfg. Co.....25@25&7½%
National Specialty Mfg. Co., list Jan. 1, 1902.....30&5%

Sweepers, Carpet—

National Sweeper Co.: Per doz.
Auditorium, Roller Bearing (26 in case), Nickel.....$54.00
Mammoth, Roller Bearing (30 in case), Nickel.....$60.00
Marion, Roller Bearing, regular finishes, full Nickel.....$24.00
Marion Queen, Roller Bearing, full Nickel. $24.00
Monarch, Roller Bearing, Nickel..$22.00
Monarch, Roller Bearing, Jap'ned.$20.00
Transparent, Roller Bearing, Plate Glass Top, Nickel $36.00
Monarch Extra, Roller Bearing, (17-inch case), Nickel.....$36.00
Monarch Extra, Roller Bearing (17-inch case), Japanned.....$33.00
National Queen, Fancy Veneers...$27.00
Perpetual, Regular Bearings, Nkl.$20.00
Perpetual, Regular Bearings, Jap.$18.00
NOTE.—*Rebates: 30c per dozen on three-dozen lots; $1 per dozen on five-dozen lots ; $2 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five-dozen lots.*

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks..... 90@30@10@....%
American Cut Tacks....90@25@....%
Swedes Cut Tacks. 90@30@10@5@....%
Swedes Upholsterers' Tacks..... 90@45@10@5@....%
Gimp Tacks.....90@45@10@....%
Lace Tacks.....90@45@10@....%
Trimmers' Tacks..90@30@10@5@....%
Looking Glass Tacks. 70@10@5@....%
Bill Posters' and Railroad Tacks... 90@45@@10....%
Hungarian Nails ....80@30@5@....%
Common and Patent Brads..... 80@10@5@....%
Trunk and Clout Nails..80@10@....%
NOTE.—*The above prices are for Straight Weights.* An extra 5% is given Star Weights** and an extra 10@5% on Standard Weights.****

Miscellaneous—

Double Pointed Tacks. 90 @6 tens & 5%
Steel Wire Brads, R. & E. Mfg. Co.'s list.. 50&10@60%
See also *Nails, Wire.*

Tanks, Oil—

	Each.
Emerald, S. S. & Co.....30-gal	$3.25
Emerald, S. S. & Co.....60-gal.	$4.00
Queen City S. S. & Co., 30-gal.....	$3.65
Queen City S. S. & Co., 60-gal.....	$4.50

Tapes, Measuring—

American Asses' Skin.....40@10@50%
Patent Leather.....25@30@5%
Steel..... .....40@40@10%
Chesterman's.....25@25@5%
Eddy Asses' Skin.....40@10@5%
Eddy Patent Leather.....25@30@5%
Eddy Steel.....40@40@10%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899..... .....35%
Lufkin's Steel.....33⅓@35%
Lufkin's Metallic.....30@30&5%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝ inch and larger, per 100 lbs. $3.00

Thermometers—

Tin Case.....50@10@30@10@5%

Ties, Bale—Steel Wire.

Single Loop .....80@2½
Monitor, Cross Head, Etc 70%

Brick Ties—

Niagara Brick Ties.....20@10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works.....60&10%

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tools—Coopers'—
L. & J. White ..... 20@20&5%

Hay—
Myers' Hay Tools 50%
Stowell's Hay Carriers 50%
Stowell's Hay Forks 50%
Stowell's Fork Pulleys 50%

Saw—
Atkins' Cross Cut Saw Tools 40%
Simonds' Improved 33⅓%
Simonds' Crescent 25%

Ship—
L. & I. J. White 25%

Transom Lifters—
See *Lifters, Transom.*

Traps—Fly—
Balloon, Globe or Acme ..... doz. $1.15@1.25; gro. $11.50@12.00
Harper, Champion or Paragon ..... doz. $1.25@1.50; gro. $13.00@13.50

Game—
Oneida Pattern ..... /5&c 10@75&c 10&5%
Newhouse ..... 45@45&5%
Hawley & Norton ..... 65@65&5%
Victor (Oneida Pattern) ..... 75@75&5%
O.C. Jump (Blake Pattern) ..... 60&5@60&10%

Mouse and Rat—
Mouse, Wood, Choker, doz. holes ..... 8½@9c
Mouse, Round or Square Wire ..... doz. 85@90c
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, Each $1.12½; ℔ doz. $12.00
No. 3, Rat, ℔ doz. $6.00; case of 50 $5.25 doz.
No. 3½, Rat, ℔ doz. $4.75; case of 72 $4.25 doz.
No. 4, Mouse, ℔ doz. $3.50; case of 7 $2.75 doz.
No. 5, Mouse, ℔ doz. $2.75; case of 150 $2.25
Schuyler's Rat Killer, No. 1, ℔ gr. $30.00
No. 2, ℔ gr. $30.00; Mouse, No. 3, $18.00 ..... 50%
J. M. Mast Mfg. Co.: Per gro.

	Mouse.	Rat.
Blizzard	No. 12, $3.00	No. 1, $9 50
Old Nick	No. 30, 2.22	No. 2, 8.40
Joker	No. 5, 2.10	No. 3, 8.40

Imp'd Snap Shot, Mouse, per gro., 2 hole, $2.40.
Imp'd Snap Shot, Mouse, per gro., 4 hole, $4.20.

Trimmers. Spoke—
Bonney's Nos. 1 and 2 ..... 33⅓%
Wood's E I 50%

Trowels—
Disston Brick and Pointing 30%
Disston Plastering 25%
Disston "Standard Brand" and Garden Trowels 35%
Kohler's Steel Garden Trowels, 5 in. ..... ℔ gro. $5.00
Kohler's Steel Garden Trowels, 6 in. ..... ℔ gro. $6.00
Never-Break Steel Garden Trowels ..... gro. $6.00
Rose Brick and Plastering ..... 25&5%
Woodrough & McParlin, Plastering 25%

Trucks, Warehouse, &c.—
B. & L. Block Co.:
New York Pattern ..... 50&10%
Western Pattern ..... 60&10%
Handy Trucks ..... per doz. $16.00
Grocery ..... per doz. $15.00
Daisy Stove Trucks, Improved pattern ℔ doz. $18.50
Model Stove Trucks ..... ℔ doz 18 50

Tubs, Wash—*No. 1 2 3*
Galvanized, per doz. $4.75 5 25 6.00
Galvanized Wash Tubs (S. S. & Co.):

No.	1	2	3	10	20	30
Per doz., net.	$5.70	6.50	7.20	6.30	7 20	8.10

Twine—Miscellaneous—
Flax Twine— BC. B.
No. 9, ¼ and ½-lb. Balls .. 22c@24c
No. 12, ¼ and ½ lb. balls .. 18c@20c
No. 18, ¼ and ½-lb. Balls .. 16c@18c
No. 24, ¼ and ½-lb. Balls .. 16c@18c
No. 36, ¼ and ½-lb. Balls .. 15c@17c
Chalk Line, Cotton, ¼-lb Balls 30c
Cotton Mops, 6, 9, 12 and 15 lb. to doz. ..... 10@12c
Cotton Wrapping 5 Balls to lb .... according to quality. .... 16c@25c
American 2-Ply Hemp, ¼ and ½-lb. Balls ..... 13@14c
American 3 Ply Hemp, 1-lb. Balls .. 13@14c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine) 9c
India 3-Ply Hemp, 1-lb. Balls 9c
India 3-Ply Hemp, 1½-lb. Balls .. 8c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls ... 9@10c
Mason Line, Linen, ½-lb. Balls ... 16c
No. 264 Mattress, ¼ and ½-lb Balls 37c
Wool, 3 to 6 ply ..... 5¾@6c

Vises—
Solid Box ..... 50&c 10@60%

Parallel—
Athol Machine Co:
Simpson's Adjustable 40%
Standard 40%
Amateur 25%
Bonney's 33⅓%
Columbian Hdw. Co. 40%
Emmert Universal:
Pattern Makers' No. 1 ..... $15.00
Pattern Makers' No. 2 ..... $12.50
Machinist and Tool Makers' No. 4. $12.50
Fisher & Norris Double Screw .... 15&10%
Hollands':
Machinists' ..... 40@40&5%
Keystone ..... 65&5@70%
Lewis Tool Co. ..... 20@30%
Merrill's 20%
Miller's Falls ..... 60&10%
Massey Vise Co.:
Clincher 40%
Perfect 30%
Lightning Grip 30%
Parker's:
Victor ..... 20@25%
Regulars ..... 20@25%
Vulcan's ..... 40@45%
Combination Pipe ..... 55@60%
Prentiss ..... 20@25%
Sargent's 40%
Smith & Hemenway Co.:
Machinists 40%
Jewelers 33⅓%
Snediker's X. L. 33⅓%
Stephens' 33⅓%

Saw Filers'—
Bonney's, No. 1, $13; No. 3, $16 .... 40%
Disston's D 3 Clamp and Guide, ℔ doz. $30 ..... 25%
Perfection Saw Clamps, ℔ doz. $8 00
Reading 60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3 ..... 45&50%

Wood Workers'—
Massey Vise Co.:
Lightning Grip 15%
Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—
Bignall & Keeler Combination Pipe Vise 60%
Hollands' Combination Pipe .... 60@60&5%
Massey's Quick Action Pipe 60%
Parker's Combination Pipe:
87 Series 60%
187 Series .... 60&5%
No. 870 ..... 40%

Wads—Price Per M.
B. E., 11 up 60c
B. E., 9 and 10 ..... 70c
B. E., 8 ..... 80c
B. E., 7 ..... 80c
P. E., 11 up $1.00
P. E., 9 and 10 ..... 1.25
P. E., 8 ..... 1.50
P. E., 7 ..... 1.50
Ely's B. E., 11 and larger .. $1.70@1.75
Ely's P. E., 12 to 20 ..... $3.00@3.25
Dis. 15%

Ware, Hollow—
Cast Iron, Hollow—
Stove Hollow Ware:
Enameled ..... 55&c 10@60%
Ground ..... 60&c 10@65%
Plain or Unground ..... 65&c 10@70%
Country Holloware per 100 lbs., $2 50
White Enameled Ware:
Maslin Kettles 70%
Covered Ware:
Tinned and Turned 40%
Enameled 60%
See also *Pots Glue.*

Enameled—
Agate Nickel Steel Ware .... 50&20
Agate Nickel Steel Ware, Specials .... 60&15%
Iron Clad Ware ..... 70&10%
Lava, Enameled ..... 40&10%
Never Break Enameled 50%

Tea Kettles—
Galvanized Tea Kettles:

Inch	*6*	*7*	*8*	*9*
Each	*45c*	*50c*	*55c*	*65c*

Steel Hollow Ware.
Avery Spiders & Griddles .... 65@65&5%
Avery Kettles 60%
Porcelained ..... 50&5@50&10%
Never Break Spiders and Griddles ..... 65&5%
Never Break Kettles 60%
Solid Steel Spiders & Griddles .... 65&5%
Solid Steel Kettles 60%

Warmers, Foot—
Pike Mfg. Co., Soapstone .... 40@40&10%

Washboards—
Solid Zinc: ℔ doz
Crescent, family size, bent frame. $3.00
Red Star, family size, stationary protector $3.00
Double Zinc Surface:
Saginaw Globe, family size, stationary protector $2.65
Cable Cross, family size, stationary protector $2.90
Single Zinc Surface:
Naiad, familysize, open back perforated $2.40
Saginaw Globe, protector, family size, ventilated back $2.25
Brass Surface:
Brass King, Single Surface, open back $3.00
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.00

Washers—Leather, Axle—
Solid ..... 80c@10@85c@10c 10%
Patent ..... 90@90@5%
Coil: ⅞ 1 1⅛ 1¼ Inch.
11c 12c 13c 14c per box

Iron or Steel—
Size bolt .... 5-16 ⅜ ½ ⅝ ¾
Washers $5.10 4.20 2.90 2.70 2.50
In lots less than one keg add ½c per lb., 5-lb. boxes add ½c to list.

Cast Washers—
Over ½ inch, barrel lots, per lb 13¼@2c

Waterers, Hog—
Improved Dewey, ℔ doz $13.00

Wedges—
Oil Finish ..... lb. 2.35@2.40c

Weights—

Hitching—
Covert Mfg. Co. ..... 40&2%
Covert's Saddlery Works ..... 60&10%

Sash—
Per ton, f.o.b. factory:
Eastern District $23.00
Western, Central and Southern Districts market unsettled, prices ranging from $19.00@20.00

Wheels, Well—
8-in., $1.6 @1.80; 10-in., $2.00@2.25; 12-in., $2.15@2.65; 14-in., $4.00@4.25

Wire and Wire Goods—
Bright and Annealed:
6 to 9 ..... 75@75&10%
10 to 13 ..... 75&5@75&10c5%
19 to 26 ..... 75&10c10@80&5%
27 to 36 ..... 75&10c7½@80&12½%
Galvanized:
6 to 9 ..... 70&5@70&10%
10 to 18 ..... 70&5@70&10%
19 to 26 ..... 72½@72½&5%
27 to 36 ..... 70@70&5%
Coppered:
6 to 9 ..... 70&5@70&10%
10 to 18 ..... 70&10@70&10&5%
19 to 26 ..... 72½@10@75%
27 to 36 ..... 70@70&5%
Tinned:
6 to 9 ..... 72½@10@75%
15 to 18 ..... 70&10@70&10&5%
19 to 26 ..... 65&10c10@70%
27 to 36 ..... 60@60&10%
Annealed, Steel and Tinned, on Spools ..... 70@70&10%
Brass & Copper on Spools 50@60&10%
Brass, list Feb. 26, '96 ..... 50%
Copper, list Feb. 26, '96 ..... 15%
Cast Steel Wire 50%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
List June 24, 1903. 90@10@90&c10@10%

Wire Cloth and Netting—
Galvanized Wire Netting ..... 80&c 10@80&c 10&c5%
Painted Screen Cloth, per 100 ft. $1.25
Standard Galv. Hardware Grade:
Nos. 2, 2½ and 3 Mesh, sq. ft. 3c
Nos. 4 and 5 Mesh, sq. ft. 3½c
No. 6 Mesh, sq ft 3½c
No. 8 Mesh, sq ft 4c

Wire Barb—See *Trade Report.*

Wrenches—
Agricultural ..... 80&c 5@80&c 10%
Baxter Pat'rn S Wrenches ..... 70&c 5@70&c 10%
Drop Forged S. ..... 45@45&c 5%
Acme ..... 60&10%
Alligator 70%
Alligator Pattern 70%
Bull Dog 70%
Bemis & Call's:
Adjustable S ..... 35&5%
Adjustable S Pipe 40%
Brigg's Pattern ..... 30&10%
Combination Black ..... 40&5%
Combination Bright 40%
Merrick's Pattern 50%
No. 3 Pipe, Bright 55%
Boardman's 33⅓%
Coes' Genuine Knife Hdl. .... 40&10&5&5%
Coes' Genuine Steel Hdl. .... 40&10&5&5%
Coes' Genuine Key Model .... 40&10&5&5%
Coes' "Mechanics' ..... 40&10&10&5&5%
Donohue's Engineer ..... 40&10%
Dudly Combination ..... 50&10&5%
Dudly Pipe ..... 50&10&5%
Dudly Adjustable Pipe ..... 40&10&5%
Eagle ..... 50&10%
Elgin Wrenches 40%
Elgin Monkey Wrench Pipe Jaws 33⅓%
Gem Pocket 30%
Hercules 70%
W. & B. Machinist:
Case lots ..... 50&5%
Less than case lots 50%
Improved Pipe (W. & B.) 60%
Solid Handles, P. S. & W ..... 50@50&5%
Stillson 65%
Triumph ..... 60&10%
Vulcan Chain 50%

Fruit Jar—
T & B Fruit Jar Wrenches ..... ℔ gro $3.00
Triumph Fruit Can Wrenches, ℔ gro $3.00
Triumph Fruit Jar Holders ℔ gro. $15.00

Wrought Goods—
Staples, Hooks, &c., list March 17 '98 ..... 90@90&c 5%

Yokes Neck—
Covert Saddlery Works, Trimmed 70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters' .. list not

Zinc—
Sheet ..... per 100 lbs. $6 15@6 40

PAINTS, OILS AND COLORS.

White Lead, Zinc, &c.
Lead, English white, in Oil .... 9½@ 9¼
Lead, American White, in Oil:
Lots of 500 ℔ or over ..... @ 6¼
Lots less than 500 ℔ ..... @ 7
In Barrels ..... @ 7
Lead, White, in oil, 25 ℔ tin pails, add to keg price ..... @ ¼
Lead, White, in oil, 12½ ℔ tin pails, add to keg price ..... @ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price .. @ 1½
Lead, American, Terms: For lots 12 tons and over ¼c rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice; for lots of less than 500 lbs. net.
Lead White, Dry in bbls. ..... @ 6
Zinc, American, dry ..... ℔ 4½@ 4¾
Zinc, French:
Paris, Red Seal, dry 7¾
Paris, Green Seal, dry 9½
Antwerp Red Seal, dry 6½
Antwerp, Green seal, dry 8¼
Zinc, V. M. French, in Poppy Oil, Green Seal:
Lots of 1 ton and over ..... 11¼@11¾
Lots of less than 1 ton ..... 11½@12
Zinc, V. M French, in Poppy Oil, Red Seal:
Lots of 1 ton and over ..... 10 @10½
Lots of less than 1 ton ..... 10¾@10¾
Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors.
Black, Carbon ..... ℔ 5 @10
Black, Drop, Amer ..... 4 @ 6
Black, Drop, Eng. ..... 5 @15
Black, Ivory ..... 16 @20
Lamp, Com ..... 4½@ 6
Blue, Celestial ..... ℔ 4 @ 6
Blue, Chinese ..... 20 @ 32
Blue, Prussian ..... 27 @30
Blue, Ultramarine ..... 44@15
Brown, Spanish ..... ½@ 1
Carmine, No. 40 ..... ℔ 3.75@4.00
Green, Chrome, ordinary .... 3½@ 6.
Green, Chrome, pure ..... 17 @25
Lead, Red, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over ..... @ 6½
Lots less than 500 ℔ ..... @ 7
Litharge, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over ..... @ 6½
Lots less than 500 ℔ ..... @ 7
Ocher, American ..... ℔ ton $6.50@16.00
Ocher, American Golden ..... 2½ @ 3
Ocher, French ..... 1¾ @ 2¼
Ocher, Foreign Golden ..... 3 @ 4
Orange Mineral, English ..... ℔ ℔ 8¾@10¼
Orange Mineral, French ..... 10¾@11¼
Orange Mineral, German ..... 7 @10
Orange Mineral, American .... 8 @ 8¼
Red, Indian, English ..... 4½@ 8½
Red, Indian, American ..... 3 @ 3¼
Red, Turkey, English ..... 4 @ 6
Red, Tuscan, English ..... 7 @10
Red, Venetian, Amer. ..... ℔ 100 ℔. $0.50@1.50
Red Venetian, English ..... ℔ 100 ℔. 1.25@1.75
Sienna, Italian, Burnt and Powdered ..... ℔ ℔ 3 @ 6½
Sienna, Ital., Raw, Powd. ..... 3 @ 6½
Sienna, American, Raw ..... 1½@ 2
Sienna, American, Burnt and Powdered ..... ℔ ℔ 1½@ 2
Tale, French ..... ℔ ℔ 1 @ 1½
Tale, American ..... 75 @1.25
Terra Alba, French, ℔ 100 ℔ . 95 @1.00
Terra Alba, English ..... .95 @1.00
Terra Alba, American No. 1 .... 70 @80
Terra Alba, American No. 2 .... 45 @55
Umber, Turkey, Bnt. & Pow. ℔ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer ..... 1½@ 2
Umber, Raw, Amer ..... 1½@ 2
Yellow, Chrome ..... 11 @14
Vermilion, American Lead ..... 10 @25
Vermilion, Quicksilver, bulk .. @75
Vermilion, Quicksilver, bags .. @85
Vermilion, English, Import .. 75 @80
Vermilion, Chinese .... .80@1.00

Colors in Oil.
Black, Lampblack ..... 12 @14
Blue, Chinese ..... 36 @46
Blue, Prussian ..... 32 @36
Blue, Ultramarine ..... 13 @16
Brown, Vandyke ..... 11 @14
Green, Chrome ..... 10 @15
Green, Paris ..... @24
Sienna, Raw ..... 12 @15
Sienna, Burnt ..... 12 @15
Umber, Raw ..... 11 @14
Umber, Burnt ..... 11 @14

Miscellaneous.
Barytes, White Foreign, ℔ ton $17.50@20.00
Barytes Amer. floated ..... 18.50@20.00
Barytes, Crude, No. 1 ..... 10.00@11.00
Chalk, in bulk ..... ℔ ton 3.00@ 3.25
Chalk, in bbls ..... .@ 35
China Clay, English .. ℔ ton 11.00@17.00
Cobalt, Oxide ..... ℔ 100 ℔ 2.50@ ...
Whiting, Common. ℔ 100 ℔ .45@ .49
Whiting, Gliders ..... .55@ .57
Whiting, extra Gliders' .... .58@ .60

Putty.
In bladders ..... 1¾@2¼
In bulk ..... 1½@2
In cans 1 ℔ to 5 ℔ ..... 2½@4¼
In cans 12½ ℔ to 25 ℔ ..... 1½@2¼

Spirits Turpentine.
In Oil bbls ..... 56 @56½@
In machine bbls ..... 56½@57 @

Glue.
Cabinet ..... ℔ ℔ 11 @15
Common Bone ..... .6 @ 8
Extra White ..... 18 @24
Foot Stock, White ..... 11 @14
Foot Stock, Brown ..... 7 @10
German Hides ..... 12 @18
French ..... 10 @40
Irish ..... 13 @16
Low Grade ..... 8 @11
Medium White ..... 14 @17

Gum Shellac— Cts. per lb.
Bleached, Commercial ..... 45 @..
Bone Dried ..... 36 @..
Button ..... 50 @60
Diamond I ..... 60 @..
Fine Orange ..... 53 @58
A. C. Garnet ..... 47 @48
D. C. ..... 95 @..
Octagon B ..... 57 @70
T. N. ..... 49 @50
V. S. O. ..... 62 @65

Animal, Fish and Vegetable Oils.
Linseed, City, raw ..... ℔ gal. 39 @40
Linseed, City, boiled ..... 41 @42
Linseed, State and West'n, raw 37 @38
Linseed, raw Calcutta seed ..... @65
Lard, Prime, Winter ..... 56 @59
Lard, Extra No. 1 ..... 48 @51
Lard, No. 2 ..... 36 @38
Cotton-seed, Crude, f.o.b mills. 21 @23
Cotton-seed, Summer Yellow, prime ..... 29 @31
Cotton-seed Summer Yellow, off grades ..... 27½@28
Sperm, Crude ..... 60 @..
Sperm, Natural Spring ..... 59 @60
Sperm, Bleached Spring ..... 58 @59
Sperm, Natural Winter ..... 61 @62
Sperm, Bleached Winter ..... 63 @64
Tallow, Prime ..... 48 @49
Whale, Crude ..... @..
Whale, Natural Winter ..... 45 @46
Whale Bleached Winter ..... 47 @48
Menhaden, Brown, Strained .. 31 @32
Menhaden, Light Strained .... 32 @33
Menhaden, Bleached Winter .. 34 @35
Menhaden, Ex Bleached Winter 36 @37
Menhaden, Southern ..... @20
Cocoanut, Ceylon ..... 5¾@ 6¼
Cocoanut, Cochin ..... 6½@ 7
Cod, Domestic ..... 34 @35
Cod, Newfoundland ..... 36½@37
Red Elaine ..... 29 @30
Red Saponified ..... ℔ ℔ 4½@4¾
Olive, Italian, bbls ..... 49 @ 51
Neatsfoot prime ..... 52 @ ..
Palm, prime, Lagos ..... ℔ ℔ 5½@ 5¾

Mineral Oils.
Black, 20 gravity, 25@30 cold test ..... ℔ gal. 11 @12
Black, 29 gravity, 15 cold test. 12 @13
Black, Summer ..... 11 @13
Cylinder, light filtered ..... 18½@19½
Cylinder, dark filtered ..... 14½@17½
Paraffine, 903-907 gravity ..... 13 @13½
Paraffine, 903 gravity ..... 12 @12½
Paraffine, 883 gravity ..... 9½@10
Paraffine, red ..... 12 @13½
In small lots ½¢ advance.

For the Table of "Current Metal Prices" see the First Issue of Every Month.

CURRENT METAL PRICES.

JULY 5, 1904.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Refined Iron: 1 to 1⅝ in. round and square; 1⅝ to 4 in. x ⅝ to 1 in.	₩ ℔ 1.80@1.85¢
1⅛ to 4 in. x ¼ to 5-16	₩ ℔ ... @2.00¢
Rods—⅜ and 11-16 round and square	₩ ℔ .... @2.00¢
Angles:	Cts ₩ ℔
3 in. x ¼ in. and larger	2.15†
3 in. x 3-16 in. and ⅜ in.	2.25¢
1¼ to 2¼ in. x ¼ in.	2.05¢
1¼ to 2¼ in. x 3-16 in. and thicker	2.00¢
1 to 1¼ in. x 3-16 in.	2.05¢
1 to 1¼ x ⅛ in.	2.10¢
⅞ x ¼ in.	2.25¢
¾ x ¼ in.	2.35¢
⅝ x ¼ in.	3.40¢
½ x 3-32 in.	3.90¢
Tees:	
1 in.	2.45†
1¼ in.	2.25¢
1½ to 2½ in.	2.15¢
3 in. and larger	2.40¢
Beams	2.20¢
Channels, 3 in. and larger	2.20¢
Bands—1½ to 6 x 3-16 to No. 8	₩ ℔ 2.10¢
"Burden's Best" Iron, base price	₩ ℔ 3.05¢
Burden's "H. B & S. Iron, base price	₩ ℔ 2.85¢
"Ulster"	₩ ℔ 3.10¢
Horway Bars	3.25@3.75¢
Norway Shapes	3.75@4.25¢

Merchant Steel from Store—

	per ℔
Bessemer Machinery	1.85¢
Toe Calk, Tire and Sleigh Shoe	2.00@2.50¢
Best Cast Steel, base price in small lots	7¢

Soft Steel Sheets—

¼ inch	2.30¢	No. 14	2.45¢
3-16 inch	2.30¢	No. 16	2.55¢
No. 8	2.30¢	No. 18	2.65¢
No. 10	2.35¢	No. 20	2.65¢
No. 12	2.40¢	No. 22	2.70¢

Sheet Iron from Store.

Black.

	One Pass, C. R. Soft Steel	R. G. Cleaned.
No. 14	₩ ℔ 2.30	2.40¢
No. 16	₩ ℔ 2.35	2.50¢
Nos. 18 to 21	₩ ℔ 2.45	2.60¢
Nos. 22 to 24	₩ ℔ 2.50	2.70¢
Nos. 25 and 26	₩ ℔ 2.55	2.80¢
No. 27	₩ ℔ 2.60	2.90¢
No. 28	₩ ℔ 2.70	3.00¢

Russia, Planished, &c.

Genuine Russia, according to assortment	₩ ℔ 11¾@14¢
Patent Planished	₩ ℔ A, 10¢; B, 9¢, net

Galvanized.

Nos. 14 to 16	₩ ℔, 2.80¢
Nos. 18 to 20	₩ ℔, 3.0 ¢
Nos. 22 to 24	₩ ℔, 3.20¢
No. 26	₩ ℔, 3.40¢
No. 27	₩ ℔, 3.65¢
No. 28	₩ ℔, 3.90¢
No. 30	₩ ℔, 4.80¢

No. 20 and lighter, 36 inches wide, 25¢ higher.

Foreign Steel from Store—

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 18 @ 20 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 13 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12 ¢
R. Mushet's "Special"	₩ ℔ 46 ¢
" "Titanic"	₩ ℔ 19 ¢
Hobson's Choice XX Extra Best	₩ ℔ 35 ¢
Jessop Self Hardening	₩ ℔ 45 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson's "Soho" Special Self-Hardening	₩ ℔ 43 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free.	Per ℔
Banca, Pigs	27 @27¼¢
Straits, Pigs	26¾@27 ¢
Straits in Bars	27¼@28 ¢

Tin Plates—

American Charcoal Plates.

Calland Grade:	
IC, 14 x 20	$6.35
IX, 14 x 20	7.85
Melyn Grade:	
IC, 14 x 20	5.85
IX, 14 x 20	7.10
Allaway Grade:	
IC, 14 x 20	5.10
IX, 14 x 20	6.20

American Coke Plates—Bessemer—

IC, 14 x 20 108 ℔	$4.20
IX, 14 x 20	$5.20

American Terne Plates—

IC, 20 x 28	$8.30
IX, 20 x 28	$10.30

Copper—

Duty: Pig, Bar and Ingot and Old Copper free. Manufactured, 2½¢ ₩ lb.

Ingot—

Lake	13¼@13½¢
Casting	13 @13¼¢

Sheet and Bolt—

October 22, 1903. Net

Prices, in cents per pound.

Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 9th sheet, 30 x 60 and heavier.	32 oz. to 64 oz. 25 to 30 lb.	24 oz. to 30 oz. 18¾ to 25 lb.	16 oz. to 24 oz. 12½ to 18¾ lb.	14 oz. and 15 oz. 11 to 12½ lb.	12 oz. and 13 oz. 9½ to 11 lb.	10 oz. and 11 oz. 7½ to 9½ lb.	8 oz. and 9 oz. 6¼ to 7½ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	18	19	19	19	20	21	23	25	28
30	96	72	18	19	19	19	20	22	25	28	
30	.....	96	18	19	19	19	21	25	28		
36	72	.....	18	19	19	19	21	23	26	29	
36	96	72	18	19	19	19	21	25	28		
36	120	96	18	19	19	20	22				
36	.....	120	18	19	19	21					
48	72	.....	18	19	19	21	23	26	29		
48	96	72	18	19	19	22	24	27			
48	120	96	18	19	21	23	27				
48	.....	120	18	20	22	25					
60	72	.....	19	19	20	22	25	30			
60	96	72	18	19	21	23	26				
60	120	96	18	20	22	25					
60	.....	120	18	21	23	27					
72	96	.....	18	22	22	27					
72	120	96	18	21	24	29					
72	.....	120	19	22	27						
108	96	.....	19	22	25						
108	120	96	20	23	26						
108	.....	120	21	24	28						
wider than 108	132	.....	22	25							
	.....	132	23	24							

Circles, Segments and Pattern Sheets, 3¢ ₩ ℔ advance over price of sheet Copper required to cut them from.
Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.
All Polished Copper, 20 in. wide and under, 1¢ ₩ ℔ advance over the price for Cold Rolled Copper.
All Polished Copper, over 20 in. wide, 2¢ ₩ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₩ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₩ ℔	23¢
12 oz. and up to 14 oz. to square foot, ₩ ℔	24¢
10 oz. and up to 12 oz., ₩ ℔	26¢
Lighter than 10 oz., ₩ ℔	29¢

Circles less than 8 in. diameter, 2¢ ₩ ℔ additional
Circles over 18 in. diameter are not classed as Copper Bottoms.
Polished Copper Bottoms and Flats, 1¢ ₩ ℔ extra.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.
List Feb. 20, 1904.

Nos.	0000 to 8 Base	9 and 10		11 and 12
		¼¢		½¢ ₩ ℔ adv.
Nos.	13	14	15	16
	¼¢	½¢	¾¢	1¼¢ ₩ ℔ adv.
Nos.	17	18	19	20
	1¼¢	2¢	2½¢	3½¢ ₩ ℔ adv.

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.
Feb. 19, 1904. Net. Outside Diameter.

Stubs' W. G.	B. & S. W. G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	3-9	...	.....	..	.....	..	.....	..	.....	..	..	18	18
12	10	...	.....	..	.....	..	.....	24	24	23	23	18	18
13	11	...	.....	..	.....	..	.....	25	25	23	23	18	18
14	12	...	.....	..	.....	25	25	25	23	23	23	19	19
15	13	...	.....	...	26	25	25	25	23	23	23	19	19
16	14	...	.....	26	26	25	25	25	23	23	23	20	20
17	15	...	29	26	26	25	25	25	23	23	23	21	21
18	16	40	31	27	27	26	26	26	24	24	24	22	22
19	17	38	31	27	27	26	26	26	24	24	24	23	23
20	18-19	60	31	27	27	26	26	26	24	24	24	24	24
21	20	60	47	29	28	28	26	25	25	25	25	25	25
22	21	67	52	31	31	29	29	27	26	26	26	26	26
23	22	72	57	33	33	31	31	29	29	29	27	29	29
24	23	77	62	49	44	42	41	41	39	37	35	36	37
25	24	82	67	52	47	43	43	43	41	40	40	41	42

Copper Bronze and Gilding Tube, 3¢ ₩ ℔ additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
36	32	29	27	21	21	21	21	21	21	23	23	25	27	28	₩ ℔

Copper, Bronze or Gilding Tubes, 3¢ ₩ ℔ additional

Brazed Brass Tubing.

(*To No. 19, inclusive.*) June 6, 1898.
Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ¼ in. up to 2 in.	$0.35
" " ⅜ " ¾ "	.36
" " ½ " ¾ "	.38
" " 5-16 " ¾ "	.41
" " ½ " ¾ "	.43
" " ¼ " 5-16"	.65
" " 3-16 " ¼ "	1.00
" " ⅛ " 3-16"	1.50
Smaller than ⅛ inch	Special
⅛ inch to 3 in. to No. 19, inclusive	.38
3 inch	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50

Bronze and Copper, advance on Brass List, 5 cents.
Discount from list 5%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass—Wider than and including	in. ⅜ to ½	in. ½ to ¾	in. ¾ to 1	in. 1 to 1½	in. 1½ to 2	in. 2 to 2½	in. 2½ to 3	in. 3 to 3½	in. 3½ to 4
To No. 20 inclusive	.22	.23	.25	.27	.29	.31	.33	.36	
Nos. 21 22, 23 and 24	.23	.24	.26	.28	.30	.32	.34	.37	
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38	
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.36	.39	

Common High Brass—Wider than and including	in. 4 to 4½	in. 4½ to 5	in. 5 to 6	in. 6 to 7	in. 7 to 8	in. 8 to 9	in. 9 to 10	in. 10 to 12
To No. 20 inclusive	.38	.40	.42	.44	.46	.48	.50	.52
Nos. 21 22, 23 and 24	.39	.41	.43	.45	.47	.49	.51	.53
Nos. 25 and 26	.40	.42	.44	.46	.48	.50	.52	.54
Nos. 27 and 28	.41	.43	.45	.47	.49	.51	.53	.55

Common High Brass—Wider than and including	in. 12 to 14	in. 14 to 16	in. 16 to 18	in. 18 to 20	in. 20 to 22	in. 22 to 24	in. 24 to 26	in. 26 to 28	in. 28 to 30	in. 30 to 32	in. 32 to 34	in. 34 to 36	in. 36 to 38	in. 38 to 40
To No. 20 inclusive	.54	.56	.58	.60	.62	.64	.66	.68	.70	.72	.74	.76	.78	.80
Nos. 21 22, 23 and 24	.55	.57	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77	.79	.81
Nos. 25 and 26	.56	.58	.60	.62	.64	.66	.68	.70	.72	.74	.76	.78	.80	.82
Nos. 27 and 28	.57	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77	.79	.81	.83

* Special prices not less than 80 cents.
Add ¼¢ ₩ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List 25%

Wire in Coils.

List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gild'g bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23¼	.27½	.28¼
No. 17 and No. 18	.24	.28	.32
No. 19 and No. 20	.25	.29	.33
No. 21	.26	.30	.34
No 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	8.95
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 25%; Copper Wire, Net.
List November 16, 98.
Spring Wire, 2¢ ₩ ℔ advance.

Tobin Bronze—

Straight, but not turned, Rods, ⅜ to 3 in. diameter, ₩ ℔, net	18¢
Finished Piston Rods ⅝ to 2½ in. diameter, ₩ ℔ net	19¢

Other sizes and extreme lengths, special prices.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₩ ℔

Western Spelter	5¼@5¾¢

Zinc.

Duty: Sheet, 2¢ ₩ ℔.

No. 9, base, casks	6½¢
Open per, ℔	7 ¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₩ ℔. Pipe and Sheets, 2½¢ ₩ ℔.

American Pig	4½@4¾¢
Bar	5½¢
Pipe	₩ ℔ 5@5½¢
Tin Lined Pipe	₩ ℔ 12½¢
Block Tin Pipe	₩ ℔ 37½¢
Sheet Lead	₩ ℔ 6½¢
Old Lead in exchange, 3½¢ ₩ ℔	

Solder.

½ & ¼, guaranteed	18 @18½¢
No. 1	16 @16½¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₩ lb.

Cookson	₩ ℔ 7¼@8¢
U. S.	6¾@7¢
Hungarian	6¼@6¾¢

Aluminum—

Duty: Crude, 8¢ ₩ ℔. Plates, Sheets, Bars and Rods, 13¢ ₩ ℔.

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting:	
Small lots	₩ ℔ 37¢
100-℔ lots	₩ ℔ 35¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:	
Small lots	₩ ℔ 34¢
100-℔ lots	₩ ℔ 33¢

Aluminum Sheet, B. & S. gauge. 50 ℔ or more

Wider than	6-in.	14-in.	24-in.
And including	14-in.	24-in.	30-in.
	₩ ℔.	₩ ℔.	₩ ℔
Nos. 13 to 19	$0.42	$0.44	$0.47
No. 20	.44	.46	.49
Nos. 21 to 23	.46	.48	.51
No. 24	.46	.50	.53
No. 25	.47	.51	.54
No. 26	.47	.54	.59
No. 27	.48	.57	.62
No. 28	.48	.57	.64
No. 29	.49	.60	.69
No. 30	.50	.64	.77

Note.—Lots of less than 50 ℔ 5¢ ₩ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 0	₩ ℔ 40¢	No. 15	₩ ℔ 43¢
No. 0 to No. 10	₩ ℔ 40½¢	No. 17	₩ ℔ 50¢
No. 11	₩ ℔ 41 ¢	No. 18	₩ ℔ 55¢
No. 12	₩ ℔ 41½¢	No. 19	₩ ℔ 60¢
No. 13	₩ ℔ 42 ¢	No. 20	₩ ℔ 65¢
No. 14	₩ ℔ 43½¢	No. 21	₩ ℔ 85¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper	₩ ℔ 10 ¢
Light and Tinned Copper	₩ ℔ 9½¢
Heavy Brass	₩ ℔ 7½¢
Light Brass	₩ ℔ 5½¢
Lead	₩ ℔ 3½¢
Tea Lead	₩ ℔ 3½¢
Zinc	₩ ℔ 3½¢
No. 1 Pewter	₩ ℔ 17½¢
No. 2 Pewter	₩ ℔ 8 ¢
Pure Aluminum, Sheet	₩ ℔ 21¢
Cast Aluminum	₩ ℔ 18¢
Tin Plate Scrap	₩ ton $4.50@5.00
Wrought Scrap Iron	₩ gross ton $10.00@10.50
Heavy Cast Scrap	₩ gross ton $7.50@8.00
Stove Plate Scrap	₩ gross ton $7.00@ 7.50
Burnt Iron	₩ gross ton $5.50@ 6.00